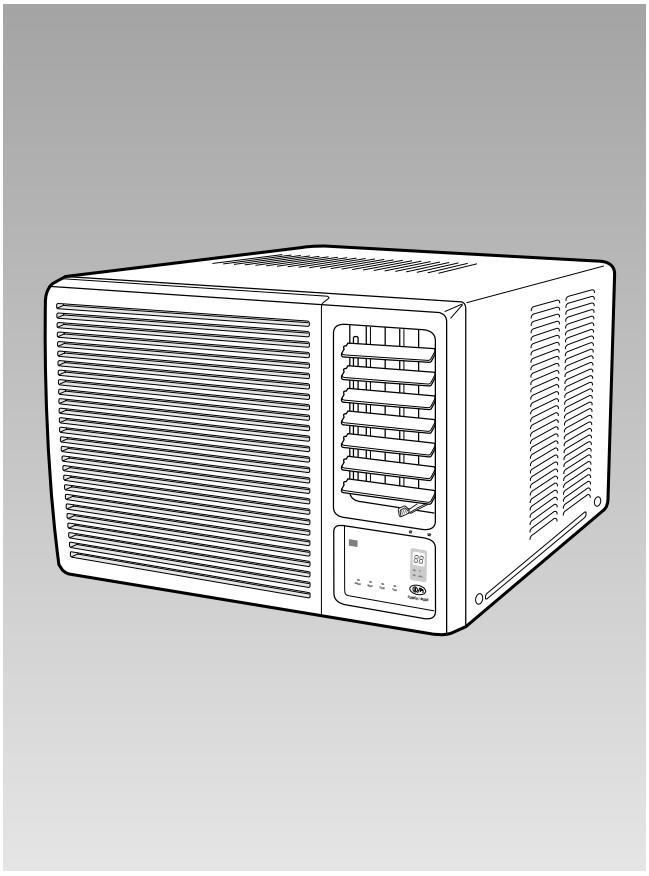
SAMSUNG

ROOM AIR CONDITIONER

AWH126JE
AWH127JE

SERVICE Manual

AIR CONDITIONER



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1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance, Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

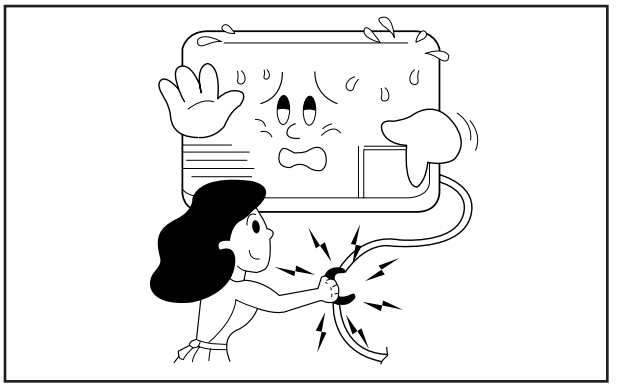


Fig. 1-1 Avoid Dangerous Contact

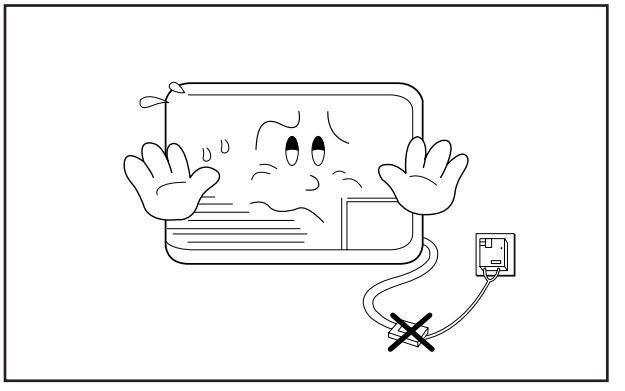


Fig. 1-2 No Tapping and No Extension Cords

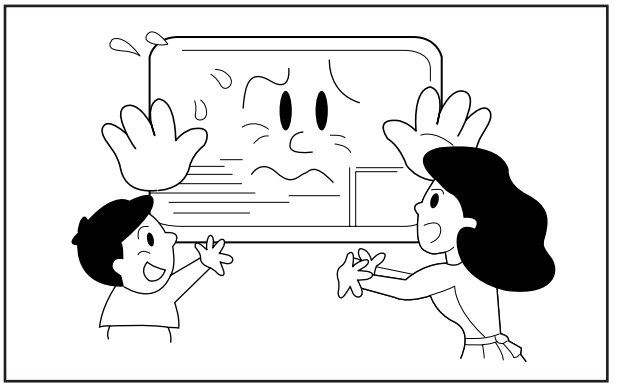


Fig. 1-3 No Kids Nearby!

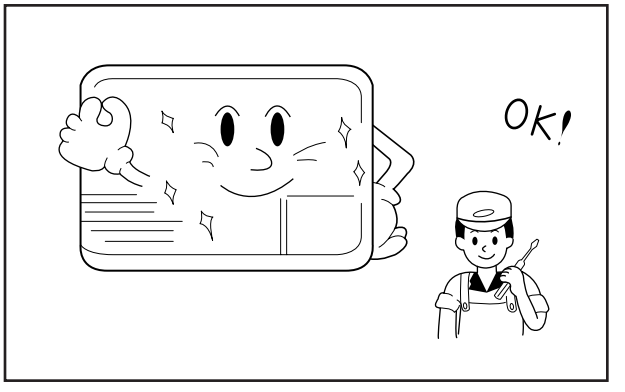


Fig. 1-4 Clean the Unit

2. Product Specifications

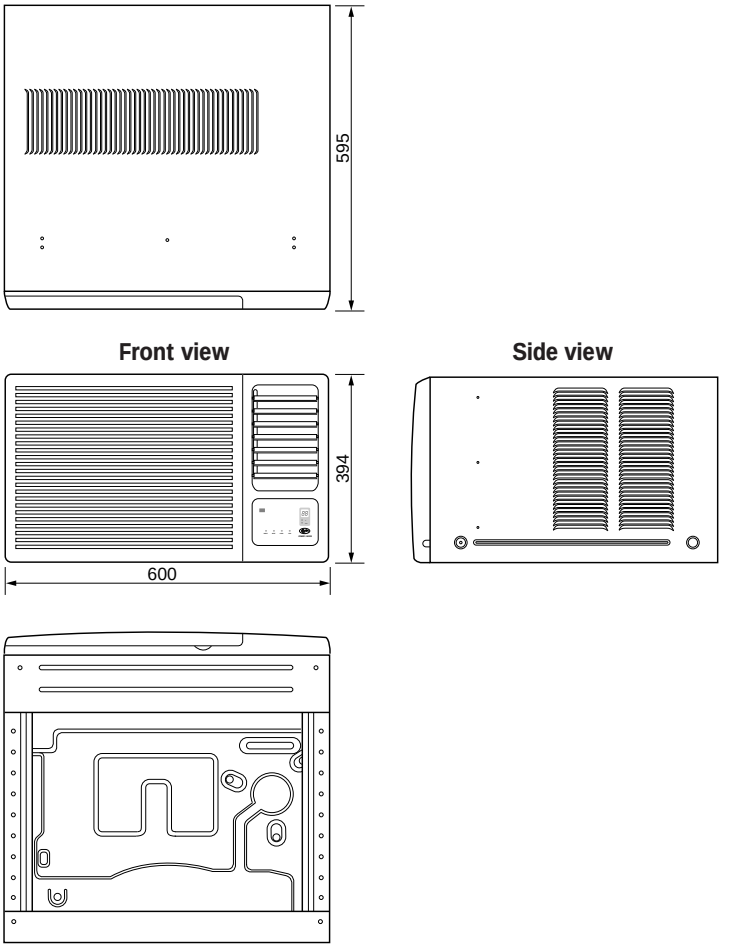
2-1 Table

Item	Unit of Measure	AWH126/127JE (COOL/HEAT)	Remarks
Type	-	Window	
Dimensions: (Width X Height X Depth)	mm	600 X 394 X 555	
Packing Size (Width X Height X Depth)	mm	715 X 470 X 655	
Voltage:	Volt	220 - 240	
Phase	-	Single	
Frequency	Hz	50	
Operating Current	A	5.9 / 5.3	
Power Consumption	W	1,350 / 1,210	
Refrigerant Type	FREON	R-22	
Refrigerant Charge	g	680	
Cooling Capacity	BTU/h	11,500 / 11,500	
EER	BTU/h.W	8.5 / 9.5	
Net Weight	kg	45	
Condenser	Row	2 X 14	
Condenser Fan	Type	Propeller Fan	
Evaporator	Row	2 X 14	
Evaporator Fan	Type	Blower	
Fan Motor	W	AMAFS100ATEA	
Compressor(Rotary)	Model	48H124JV1E4	
Overload Protect	-	MRA12030-12008	
Compressor Capacitor	µF/ VAC	30 / 450 DUAL TYPE	
Fan Motor Capacitor	µF/ VAC	3.5 / 450	
Fan Speed Control	-	Fan speed switch (High & Low)	
Thermo Control	-	Thermistor	
OFF Timer	hr	24	

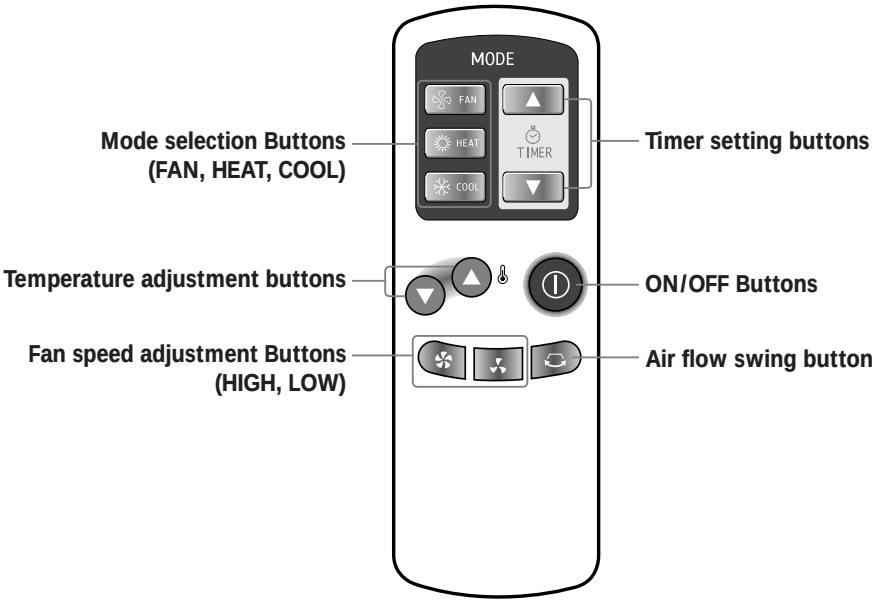
2-2 Dimensions

2-2-1 Main Unit

Unit : mm



2-2-2 Remote Control



3. Installation and Operating Instructions

3-1 Installation

* When selecting the area for installing the unit, be sure to obtain approval of the customer.

1. Make sure that you install the unit in an area that provides good ventilation.
   The air conditioner must not be blocked by any obstacle affecting the air flow near the air inlet and air outlet.

2. Make sure that you install the unit in an area which can endure the weight and vibration of the unit.

3. Make sure that you install the unit away from heat or vapor.

4. Make sure that you install the unit in an area where the cooled air can be evenly spread in a room.

5. Make sure that you install the unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances. (obtain a clearance of at least one meter)

6. Make sure that you install the unit in an area which provides easy drainage for condensed water.

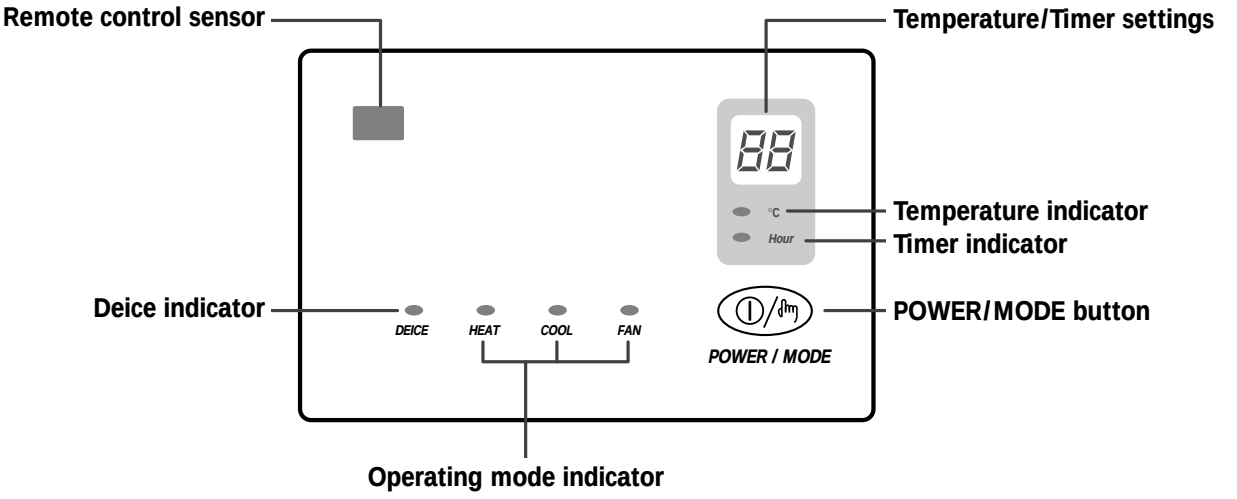
7. Make sure that you install the unit in an area not exposed to rain or direct sunlight.
   (Install a separate sunblind if exposed to direct sunlight.)

8. Do not install the unit in an area subjected to noise or vibration amplification which may affect your neighbor.
   (Fix the unit firmly if mounted in a high place.)

Caution:

Do not use the air conditioner in such areas as a greasy area(including machine oil), saline area(sea side), or sulphuric area(hot spring). When using the air conditioner in these areas, special maintenance is required. Contact your local dealer or our service center for advice.

3-2 Function Description



3-2-1 Cooling operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature -1˚C"
     * The compressor is turned on when "ambient temperature = set temperature +1˚C"
2. Default value after power reset → set temperature = 18˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 18˚C to 30˚C.

3-2-2 Heating operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control.
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature +1˚C"
     * The compressor is turned on when "ambient temperature = set temperature -1˚C"
2. Default value after power reset → set temperature = 24˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 16˚C to 30˚C.

3-2-3 Fan operation mode

1. If "Fan operation mode" signal is received from remocon.
   → the compressor is immediately turned off and only fan motor is operated at set blowing speed.
   → it changes such as "HIGH → LOW → HIGH"(if Fan speed is selected).
2. The initial FAN speed is set to "HIGH".
3. The set temperature can not be indicated and set.

3-2-4 LED lamp and LED display indication in case of error detection

ERROR OPERATION	LED LAMP DISPLAY			7-SEG LED DISPLAY
	COOL	HEAT	FAN	
ROOM THERMISTOR (OPEN OR SHORT)	◐	×	×	E1 displayed
INDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	×	◐	E5 displayed
OUTDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	◐	◐	E6 displayed

Lamp ◐ —— blinking at every second (on for 0.5s and off for 0.5s)
× —— LED lamp off

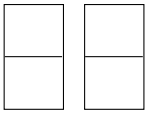
1. Set operation in case of error occurrence.
   - Malfunction of each temperature sensor (open, short)
     - Error mode display, warning sound.
     - The operation status is off.

2. The "outdoor pipe thermistor" error mode carry out checking only during heating operation and do not carry out checking during "COOLING" and "FAN" operation.

3-2-5 Panel key operation

Key discription / Key name	Key operational function	Key Type
Power/Mode	1. Operation mode change and POWER OFF(in case of model option heat pump) * at every ON - Selected as "OFF –> COOL –> HEAT –> FAN –> OFF". (Default=OFF) * Continuous operation is not available.	TACT

3-2-6 LED lamp operation specifications

LAMP name	Operations specifications
COOL	The mode is set to "COOL" –> ON Others –> OFF
HEAT	The mode is set to "HEAT" –> ON Others –> OFF
FAN	The mode is set to "FAN" –> ON Others –> OFF
˚C	The set temperature is displayed or set -> ON Others –> OFF
HR	During setting of the convenient reserve (OFF TIMER) time -> blinking After setting of the convenient reserve (OFF TIMER) time -> ON Others –> OFF
DEICE	Till the "DEICING" operation is completed during heating opertion -> ON Others –> OFF
 (1) (2)	In case of (set) temperature display -> NO. (1) 7 seg. LED display indicates temperature of the tens digit (˚C, ˚F) -> NO. (2) 7 seg. LED display indicates temperature of the units digit (˚C, ˚F) In case of time (OFF TIMER) display -> NO. (1) 7 seg. LED display indicates time of the tens digit -> NO. (2) 7 seg. LED display indicates time of the units digit

3-2-7 Resistor values table of “ROOM THERMISTOR”, “INDOOR PIPE THERMISTOR” and “OUTDOOR PIPE THERMISTOR” for each temperature

1. Room thermistor (SPEC : 103AT)

Temperature [˚C]	THERMISTOR RESISTOR [Kohm]
70	2.229
69	2.296
68	2.365
67	2.437
66	2.512
65	2.589
64	2.669
63	2.752
62	2.838
61	2.928
60	3.021
59	3.116
58	3.216
57	3.319
56	3.426
55	3.537
54	3.652
53	3.772
52	3.897
51	4.026
50	4.161
49	4.300
48	4.444
47	4.594
46	4.749
45	4.912
44	5.080
43	5.256
42	5.439
41	5.630
40	5.828
39	6.033
38	6.246
37	6.468
36	6.699
35	6.941
34	7.192
33	7.455
32	7.729
31	8.015
30	8.313

Temperature [˚C]	THERMISTOR RESISTOR [Kohm]
29	8.622
28	8.944
27	9.281
26	9.632
25	10.000
24	10.380
23	10.780
22	11.200
21	11.630
20	12.090
19	12.560
18	13.060
17	13.570
16	14.120
15	14.680
14	15.280
13	15.900
12	16.550
11	17.240
10	17.960
9	18.700
8	19.480
7	20.290
6	21.150
5	22.050
4	22.990
3	23.900
2	25.030
1	26.130
0	27.280
-1	28.470
-2	29.720
-3	31.040
-4	32.430
-5	33.890
-6	35.430
-7	37.050
-8	38.760
-9	40.560

2. Indoor pipe Thermistor and Outdoor pipe Thermistor (SPEC : 10KD)

Temperature [°C]	THERMISTOR RESISTOR [Kohm]
70	1.670
69	1.729
68	1.791
67	1.855
66	1.922
65	1.992
64	2.065
63	2.141
62	2.220
61	2.303
60	2.390
59	2.480
58	2.574
57	2.672
56	2.775
55	2.882
54	2.994
53	3.111
52	3.234
51	3.362
50	3.496
49	3.635
48	3.780
47	3.932
46	4.091
45	4.257
44	4.432
43	4.614
42	4.806
41	5.007
40	5.217
39	5.438
38	5.669
37	5.912
36	6.167
35	6.435
34	6.716
33	7.012
32	7.322
31	7.649
30	7.993

Temperature [°C]	THERMISTOR RESISTOR [Kohm]
29	8.354
28	8.734
27	9.135
26	9.556
25	10.00
24	10.46
23	10.94
22	11.45
21	11.99
20	12.55
19	13.15
18	13.78
17	14.44
16	15.14
15	15.88
14	16.66
13	17.48
12	18.36
11	19.28
10	20.25
9	21.28
8	22.38
7	23.54
6	24.76
5	26.06
4	27.44
3	28.90
2	30.45
1	32.10
0	33.85
-1	35.66
-2	37.59
-3	39.64
-4	41.82
-5	44.14
-6	46.60
-7	49.22
-8	52.01
-9	54.98
-10	58.14

3-2-8 About the safety devices

1. High temperature release : If temperature of the indoor pipe thermistor increases over the specified value during heating operation, following operation is carried out for safety of the equipment.

   ┌ A condition : temperature of indoor pipe thermistor is below 47˚C
   ├ B condition : temperature of indoor pipe thermistor is between 58˚C and 63˚C
   └ C condition : temperature of indoor pipe thermistor is over 63˚C

   1) High temperature release operation OFF condition = A condition
      -> compressor ON (only in THERMO ON condition)
      -> fan motor speed = set fan speed and cool blowing inhibiting operation
   2) High temperature release operation ON condition = B condition
      -> compressor ON
      -> fan motor speed = HIGH operation if it was LOW
                         = HIGH operation if it was HIGH
   3) High temperature release operation ON condition = C condition
      -> fan motor speed = set fan speed
      -> compressor OFF

2. Low temperature release : If temperature of the indoor pipe thermistor decreases below the specified value during cooling operation, following operation is carried out for safety of the equipment.

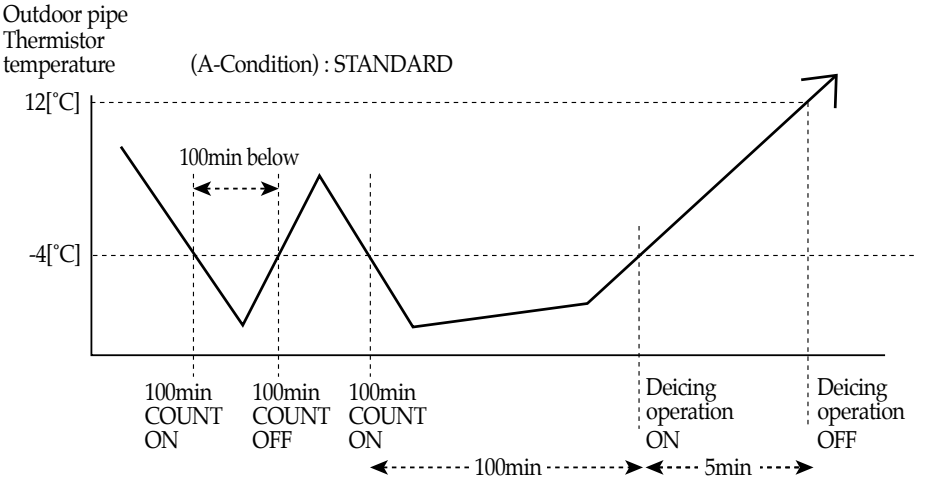
   ┌ A condition : temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes
   └ B condition : temperature of indoor pipe thermistor is over 5˚C

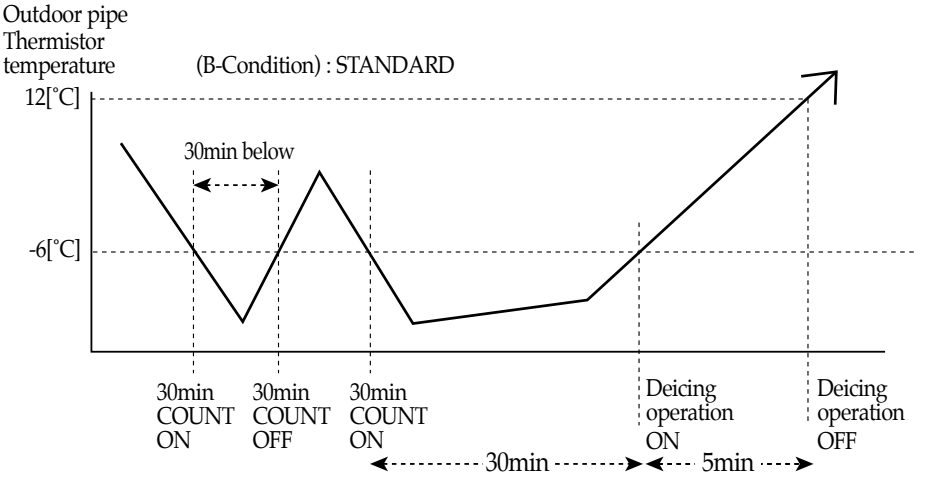
   1) Low temperature release ON condition = A condition
      -> compressor OFF
      -> fan motor "set fan speed"
   2) Low temperature release OFF condition = B condition
      -> The compressor is turned on if ON condition is satisfied after comparing the ambient temperature with the set temperature
      -> fan motor "set fan speed"

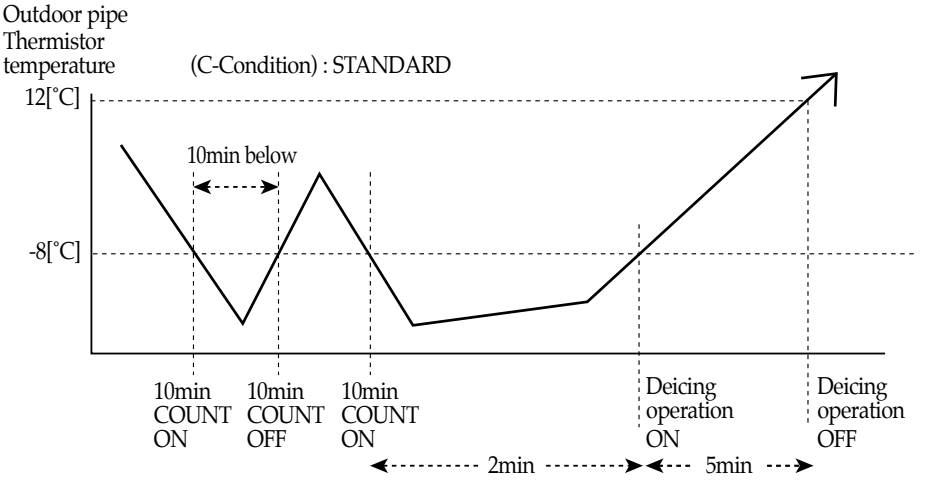
[Detailed description]

1) If temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes, the fan motor continues to operate at the set fan speed and the compressor is turned off(Low temperature release operation)
2) If temperature of the indoor pipe thermistor increases over +5˚C during low temperature release operation, normal operation is recovered
   : compressor ON, fan mtor set fan speed -> Low temperature release operation OFF
3) If temperature of indoor pipe thermistor increases over 0˚C during counting 6 minutes below -1˚C, the counter is reset.

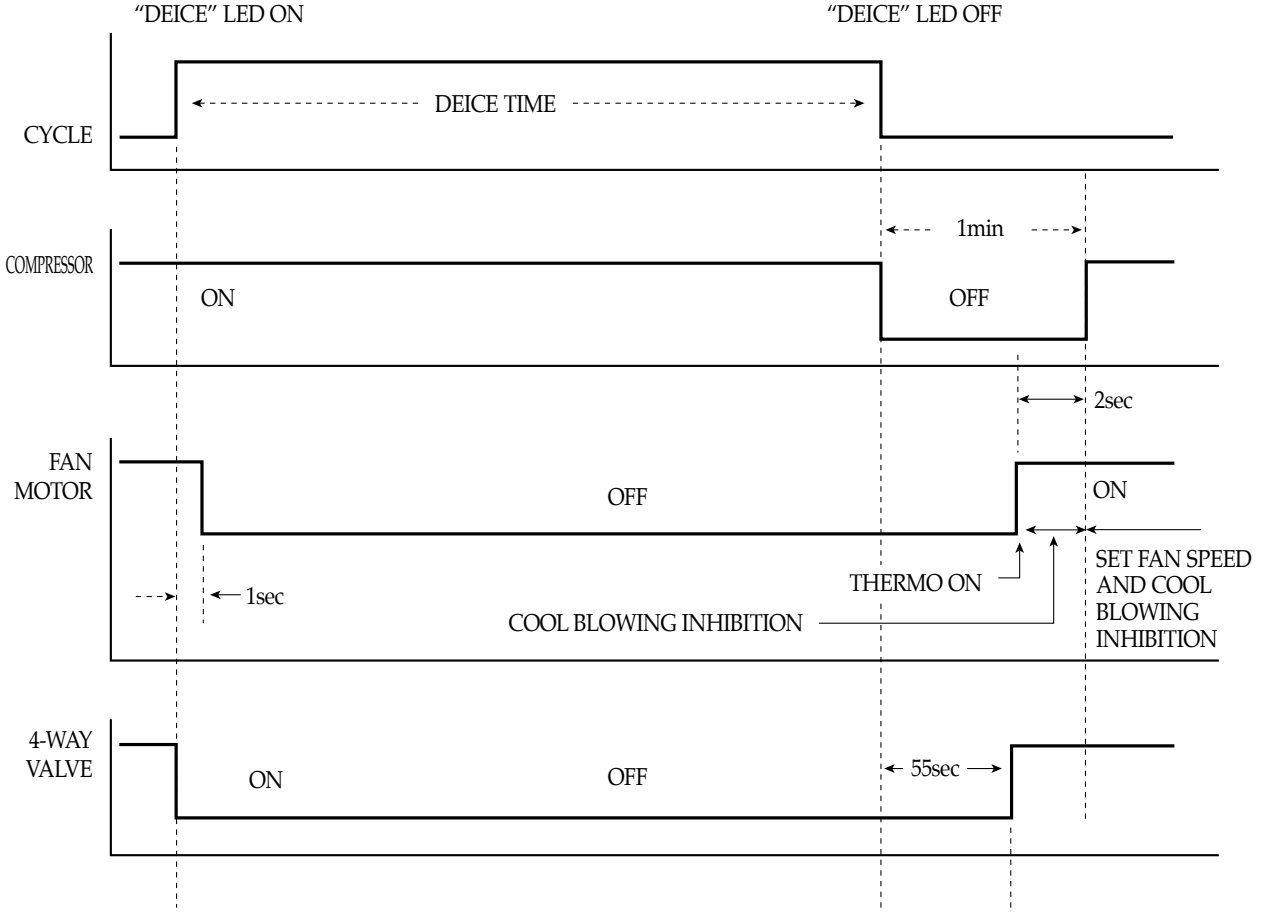
3. Deicing operation : If temperature of the outdoor pipe thermistor decreases below the specified value during heating operation, following operation is carried out for safety of the equipment.





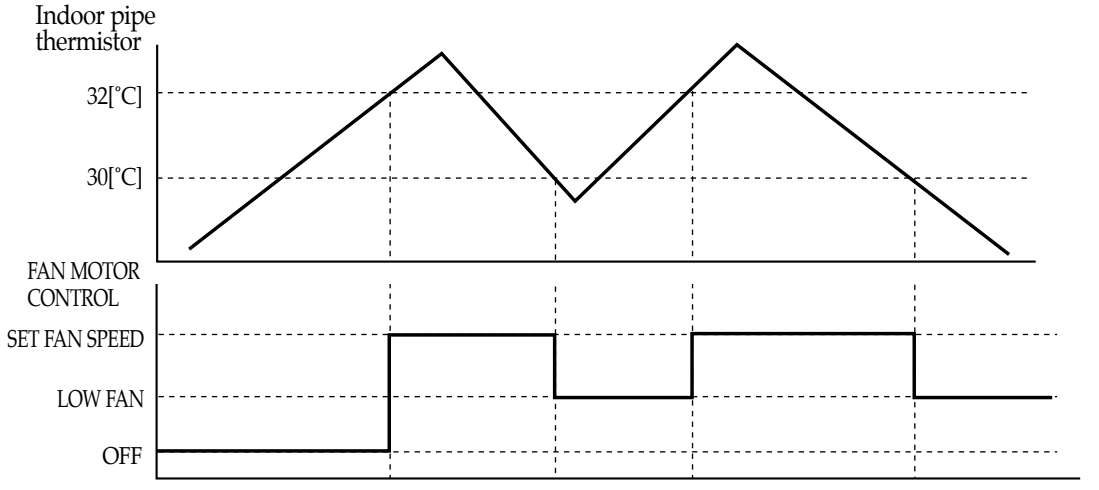


1) Deicing detecting condition
   - If one of A, B and C conditions is satisfied, deicing operation is carried out.(AUBUC)
   - If counting time is overlapped due to detection reference temperature change during counting of the deicing condition, deicing operation starts when the counting time is finished first.
   - The maximum counting time is 100 minutes.
     - During deicing operation, the left and right swing motor is turned off and stops at the position before swing.
     - If operation is turned off during deicing operation, it is finished and the compressor is turned off.
     -> Deice lamp ON, fan motor OFF.
2) Display indication.
   - The deice lamp is turned on additionally during deicing cycle.
   - Only the deice lamp is turned off when deicing is finished.
3) In case of turning off during deicing operation.
   - The compressor is turned off after finishing the deicing operation.
   - The deice lamp is turned on during deicing cycle and is turned off when deicing is finished.
4) In case of changing mode to cooling operation during deicing operation.
   - Cooling operation is carried out after carrying out deicing operation.
   - After the compressor is turned off and 1 minutes is passed, it is restarted.
5) Load operation during deicing operation.

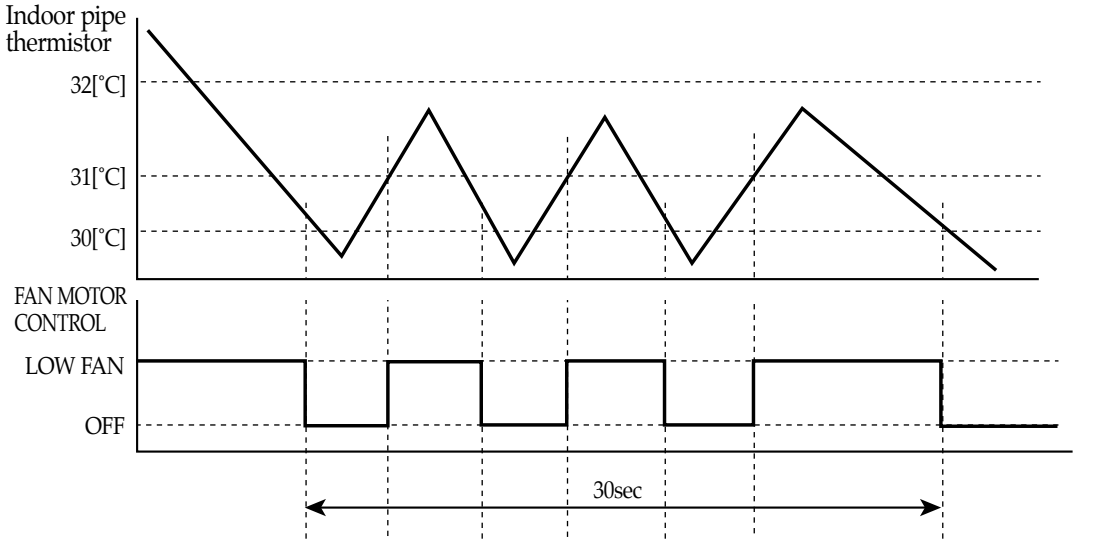


4. Cool blowing inhibiting control : In order to inhibit cool blowing during heating operation, the fan motor is operated when temperature of the indoor pipe thermistor is above the specified value.
   - The fan motor speed is controlled according to the temperature of condition of the indoor pipe thermistor.

< Compressor OFF -> Compressor ON >



< Compressor ON -> Compressor OFF >



1) When the indoor pipe thermistor temperature is increasing
   indoor pipe thermistor temperature = below 32˚C --> fan motor OFF
   indoor pipe thermistor temperature = over 32˚C --> fan motor speed "set blower speed"
2) When the indoor pipe thermistor temperature is decreasing
   indoor pipe thermistor temperature = over 30˚C --> fan motor speed "set blower speed"
   indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
3) But if the compressor is operating, the fan motor is not turned off but is operated weakly even if the indoor pipe thermistor temperature decreases.

< Compressor ON -> Compressor OFF >

indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
indoor pipe thermistor temperature = over 30˚C --> fan motor OFF
30s is passed after compressor is turned off --> fan motor OFF

3-2-9 Compressor delayed operation and 4-way valve delayed operation :

The compressor is turned on after 3 minutes from power resetting or compressor turning off during cooling or heating operation.

1) The compressor can be turned on after "3 minutes delay" from power resetting or compressor turning off.
2) The 4 way valve is turned off/on after "2 minutes and 55 seconds delay" in the on/off condition. (during heating operation)
3) The operation is stopped after "2 minutes and 55 seconds delay" in the off condition when the 4 way valve is turned on.

3. Installation and Operating Instructions

3-1 Installation

* When selecting the area for installing the unit, be sure to obtain approval of the customer.

1. Make sure that you install the unit in an area that provides good ventilation.
   The air conditioner must not be blocked by any obstacle affecting the air flow near the air inlet and air outlet.

2. Make sure that you install the unit in an area which can endure the weight and vibration of the unit.

3. Make sure that you install the unit away from heat or vapor.

4. Make sure that you install the unit in an area where the cooled air can be evenly spread in a room.

5. Make sure that you install the unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances. (obtain a clearance of at least one meter)

6. Make sure that you install the unit in an area which provides easy drainage for condensed water.

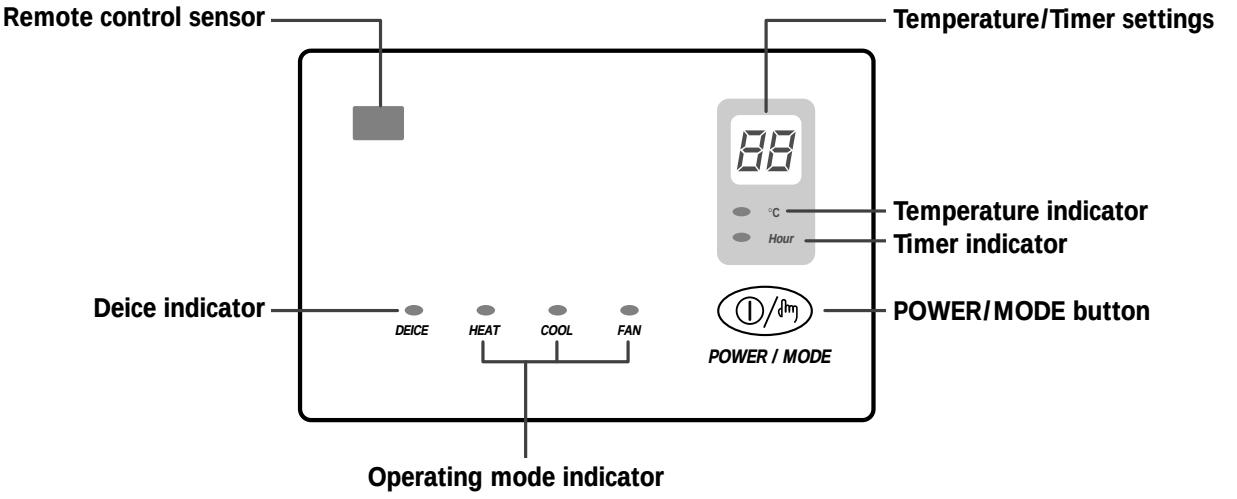
7. Make sure that you install the unit in an area not exposed to rain or direct sunlight.
   (Install a separate sunblind if exposed to direct sunlight.)

8. Do not install the unit in an area subjected to noise or vibration amplification which may affect your neighbor.
   (Fix the unit firmly if mounted in a high place.)

Caution:

Do not use the air conditioner in such areas as a greasy area(including machine oil), saline area(sea side), or sulphuric area(hot spring). When using the air conditioner in these areas, special maintenance is required. Contact your local dealer or our service center for advice.

3-2 Function Description



3-2-1 Cooling operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature -1˚C"
     * The compressor is turned on when "ambient temperature = set temperature +1˚C"
2. Default value after power reset → set temperature = 18˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 18˚C to 30˚C.

3-2-2 Heating operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control.
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature +1˚C"
     * The compressor is turned on when "ambient temperature = set temperature -1˚C"
2. Default value after power reset → set temperature = 24˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 16˚C to 30˚C.

3-2-3 Fan operation mode

1. If "Fan operation mode" signal is received from remocon.
   → the compressor is immediately turned off and only fan motor is operated at set blowing speed.
   → it changes such as "HIGH → LOW → HIGH"(if Fan speed is selected).
2. The initial FAN speed is set to "HIGH".
3. The set temperature can not be indicated and set.

3-2-4 LED lamp and LED display indication in case of error detection

ERROR OPERATION	LED LAMP DISPLAY			7-SEG LED DISPLAY
	COOL	HEAT	FAN	
ROOM THERMISTOR (OPEN OR SHORT)	◐	×	×	E1 displayed
INDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	×	◐	E5 displayed
OUTDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	◐	◐	E6 displayed

Lamp ◐ —— blinking at every second (on for 0.5s and off for 0.5s)
× —— LED lamp off

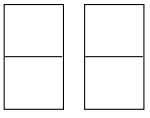
1. Set operation in case of error occurrence.
   - Malfunction of each temperature sensor (open, short)
     - Error mode display, warning sound.
     - The operation status is off.

2. The "outdoor pipe thermistor" error mode carry out checking only during heating operation and do not carry out checking during "COOLING" and "FAN" operation.

3-2-5 Panel key operation

Key discription / Key name	Key operational function	Key Type
Power/Mode	1. Operation mode change and POWER OFF(in case of model option heat pump) * at every ON - Selected as "OFF –> COOL –> HEAT –> FAN –> OFF". (Default=OFF) * Continuous operation is not available.	TACT

3-2-6 LED lamp operation specifications

LAMP name	Operations specifications
COOL	The mode is set to "COOL" –> ON Others –> OFF
HEAT	The mode is set to "HEAT" –> ON Others –> OFF
FAN	The mode is set to "FAN" –> ON Others –> OFF
˚C	The set temperature is displayed or set -> ON Others –> OFF
HR	During setting of the convenient reserve (OFF TIMER) time -> blinking After setting of the convenient reserve (OFF TIMER) time -> ON Others –> OFF
DEICE	Till the "DEICING" operation is completed during heating opertion -> ON Others –> OFF
 (1) (2)	In case of (set) temperature display -> NO. (1) 7 seg. LED display indicates temperature of the tens digit (˚C, ˚F) -> NO. (2) 7 seg. LED display indicates temperature of the units digit (˚C, ˚F) In case of time (OFF TIMER) display -> NO. (1) 7 seg. LED display indicates time of the tens digit -> NO. (2) 7 seg. LED display indicates time of the units digit

3-2-7 Resistor values table of “ROOM THERMISTOR”, “INDOOR PIPE THERMISTOR” and “OUTDOOR PIPE THERMISTOR” for each temperature

1. Room thermistor (SPEC : 103AT)

Temperature [˚C]	THERMISTOR RESISTOR [Kohm]
70	2.229
69	2.296
68	2.365
67	2.437
66	2.512
65	2.589
64	2.669
63	2.752
62	2.838
61	2.928
60	3.021
59	3.116
58	3.216
57	3.319
56	3.426
55	3.537
54	3.652
53	3.772
52	3.897
51	4.026
50	4.161
49	4.300
48	4.444
47	4.594
46	4.749
45	4.912
44	5.080
43	5.256
42	5.439
41	5.630
40	5.828
39	6.033
38	6.246
37	6.468
36	6.699
35	6.941
34	7.192
33	7.455
32	7.729
31	8.015
30	8.313

Temperature [˚C]	THERMISTOR RESISTOR [Kohm]
29	8.622
28	8.944
27	9.281
26	9.632
25	10.000
24	10.380
23	10.780
22	11.200
21	11.630
20	12.090
19	12.560
18	13.060
17	13.570
16	14.120
15	14.680
14	15.280
13	15.900
12	16.550
11	17.240
10	17.960
9	18.700
8	19.480
7	20.290
6	21.150
5	22.050
4	22.990
3	23.900
2	25.030
1	26.130
0	27.280
-1	28.470
-2	29.720
-3	31.040
-4	32.430
-5	33.890
-6	35.430
-7	37.050
-8	38.760
-9	40.560

2. Indoor pipe Thermistor and Outdoor pipe Thermistor (SPEC : 10KD)

Temperature [°C]	THERMISTOR RESISTOR [Kohm]
70	1.670
69	1.729
68	1.791
67	1.855
66	1.922
65	1.992
64	2.065
63	2.141
62	2.220
61	2.303
60	2.390
59	2.480
58	2.574
57	2.672
56	2.775
55	2.882
54	2.994
53	3.111
52	3.234
51	3.362
50	3.496
49	3.635
48	3.780
47	3.932
46	4.091
45	4.257
44	4.432
43	4.614
42	4.806
41	5.007
40	5.217
39	5.438
38	5.669
37	5.912
36	6.167
35	6.435
34	6.716
33	7.012
32	7.322
31	7.649
30	7.993

Temperature [°C]	THERMISTOR RESISTOR [Kohm]
29	8.354
28	8.734
27	9.135
26	9.556
25	10.00
24	10.46
23	10.94
22	11.45
21	11.99
20	12.55
19	13.15
18	13.78
17	14.44
16	15.14
15	15.88
14	16.66
13	17.48
12	18.36
11	19.28
10	20.25
9	21.28
8	22.38
7	23.54
6	24.76
5	26.06
4	27.44
3	28.90
2	30.45
1	32.10
0	33.85
-1	35.66
-2	37.59
-3	39.64
-4	41.82
-5	44.14
-6	46.60
-7	49.22
-8	52.01
-9	54.98
-10	58.14

3-2-8 About the safety devices

1. High temperature release : If temperature of the indoor pipe thermistor increases over the specified value during heating operation, following operation is carried out for safety of the equipment.

   ┌ A condition : temperature of indoor pipe thermistor is below 47˚C
   ├ B condition : temperature of indoor pipe thermistor is between 58˚C and 63˚C
   └ C condition : temperature of indoor pipe thermistor is over 63˚C

   1) High temperature release operation OFF condition = A condition
      -> compressor ON (only in THERMO ON condition)
      -> fan motor speed = set fan speed and cool blowing inhibiting operation
   2) High temperature release operation ON condition = B condition
      -> compressor ON
      -> fan motor speed = HIGH operation if it was LOW
                         = HIGH operation if it was HIGH
   3) High temperature release operation ON condition = C condition
      -> fan motor speed = set fan speed
      -> compressor OFF

2. Low temperature release : If temperature of the indoor pipe thermistor decreases below the specified value during cooling operation, following operation is carried out for safety of the equipment.

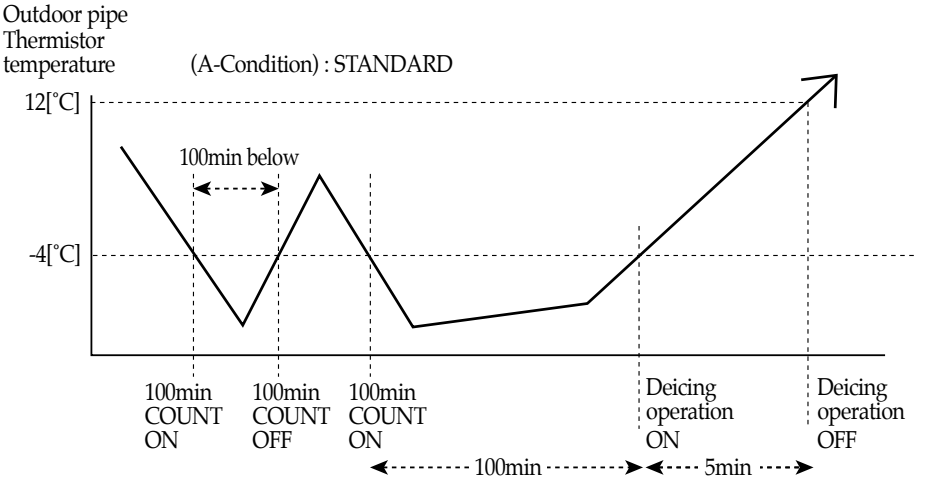
   ┌ A condition : temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes
   └ B condition : temperature of indoor pipe thermistor is over 5˚C

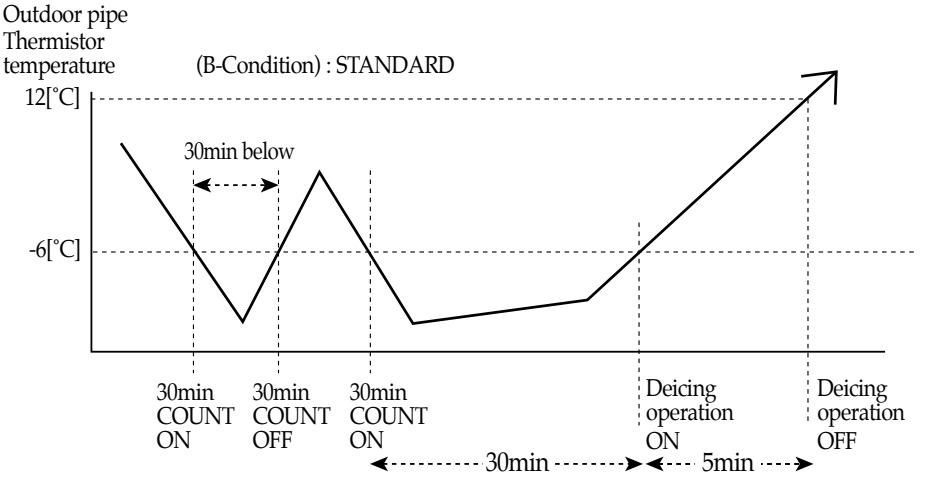
   1) Low temperature release ON condition = A condition
      -> compressor OFF
      -> fan motor "set fan speed"
   2) Low temperature release OFF condition = B condition
      -> The compressor is turned on if ON condition is satisfied after comparing the ambient temperature with the set temperature
      -> fan motor "set fan speed"

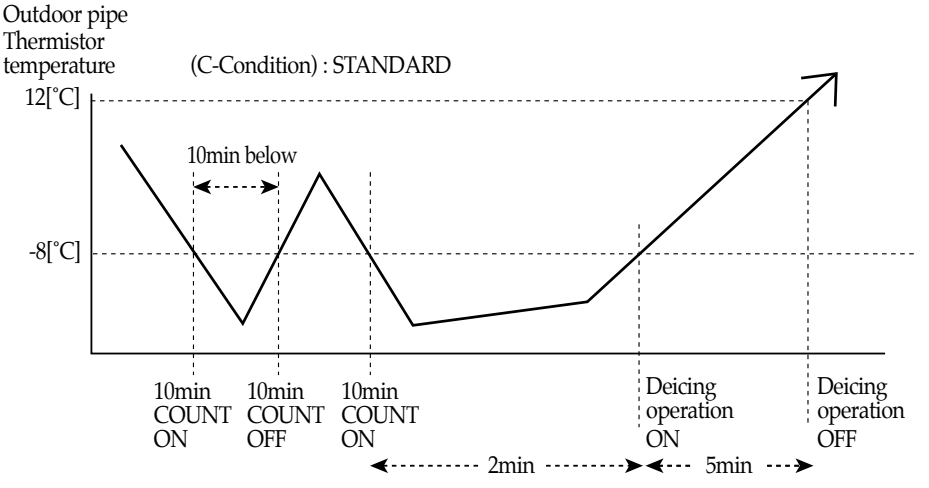
[Detailed description]

1) If temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes, the fan motor continues to operate at the set fan speed and the compressor is turned off(Low temperature release operation)
2) If temperature of the indoor pipe thermistor increases over +5˚C during low temperature release operation, normal operation is recovered
   : compressor ON, fan mtor set fan speed -> Low temperature release operation OFF
3) If temperature of indoor pipe thermistor increases over 0˚C during counting 6 minutes below -1˚C, the counter is reset.

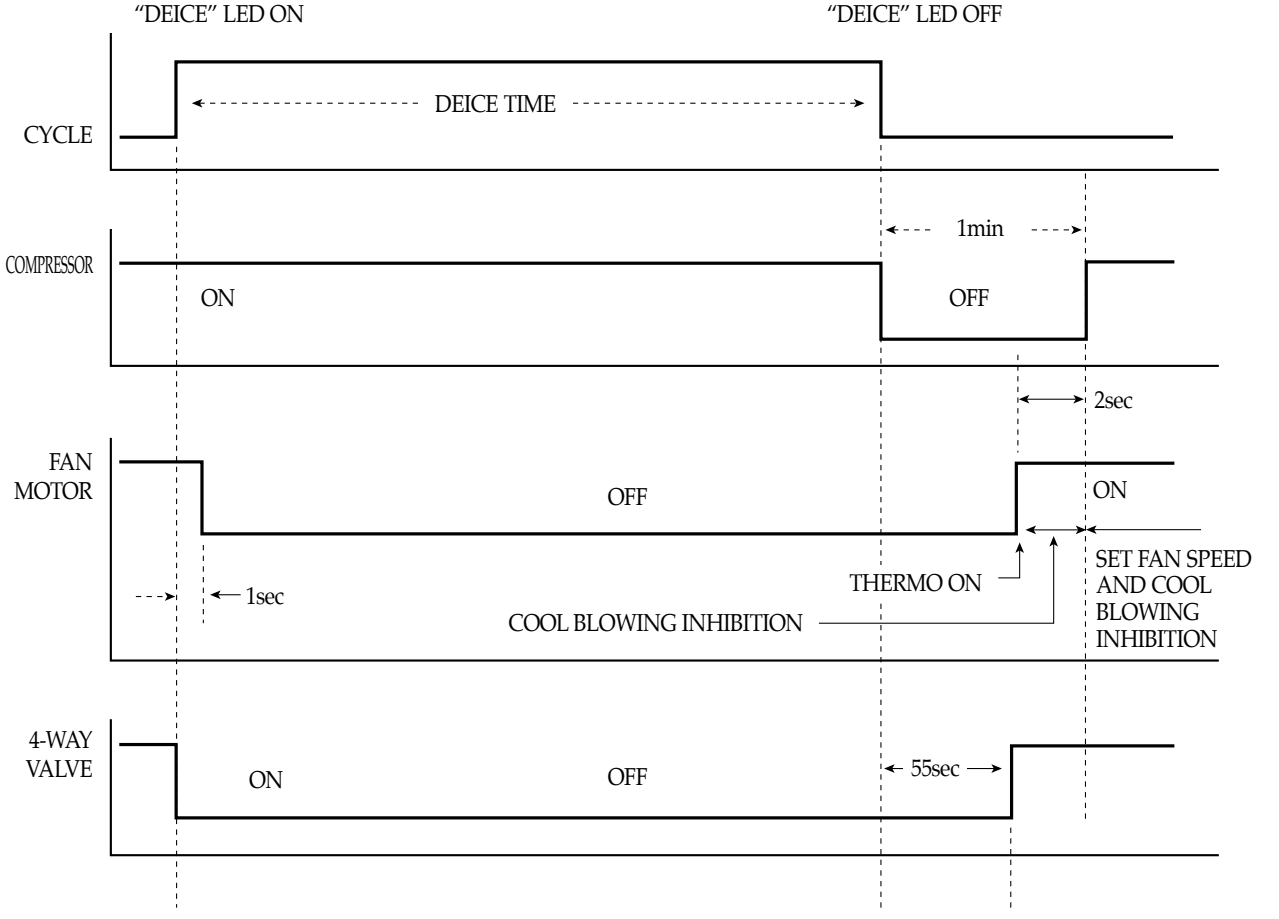
3. Deicing operation : If temperature of the outdoor pipe thermistor decreases below the specified value during heating operation, following operation is carried out for safety of the equipment.





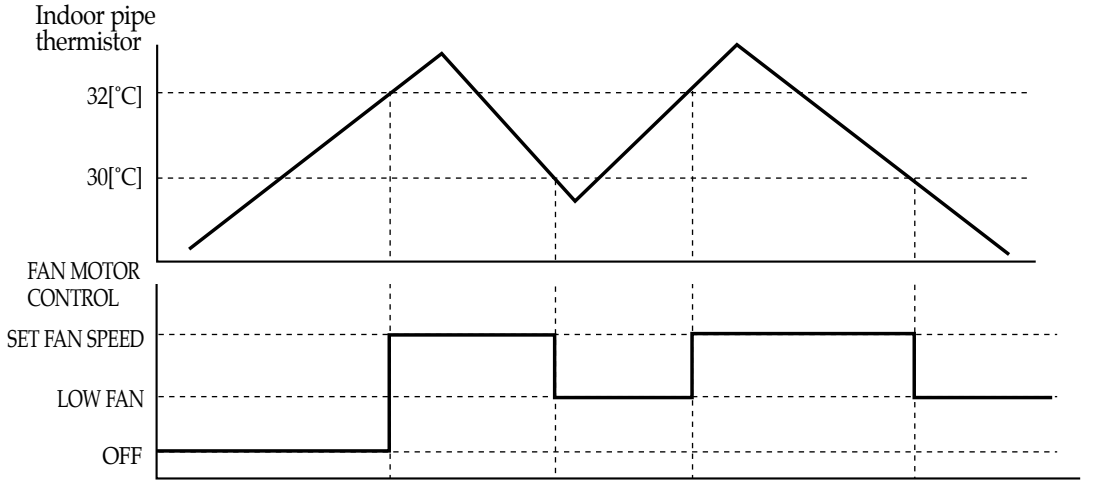


1) Deicing detecting condition
   - If one of A, B and C conditions is satisfied, deicing operation is carried out.(AUBUC)
   - If counting time is overlapped due to detection reference temperature change during counting of the deicing condition, deicing operation starts when the counting time is finished first.
   - The maximum counting time is 100 minutes.
     - During deicing operation, the left and right swing motor is turned off and stops at the position before swing.
     - If operation is turned off during deicing operation, it is finished and the compressor is turned off.
     -> Deice lamp ON, fan motor OFF.
2) Display indication.
   - The deice lamp is turned on additionally during deicing cycle.
   - Only the deice lamp is turned off when deicing is finished.
3) In case of turning off during deicing operation.
   - The compressor is turned off after finishing the deicing operation.
   - The deice lamp is turned on during deicing cycle and is turned off when deicing is finished.
4) In case of changing mode to cooling operation during deicing operation.
   - Cooling operation is carried out after carrying out deicing operation.
   - After the compressor is turned off and 1 minutes is passed, it is restarted.
5) Load operation during deicing operation.

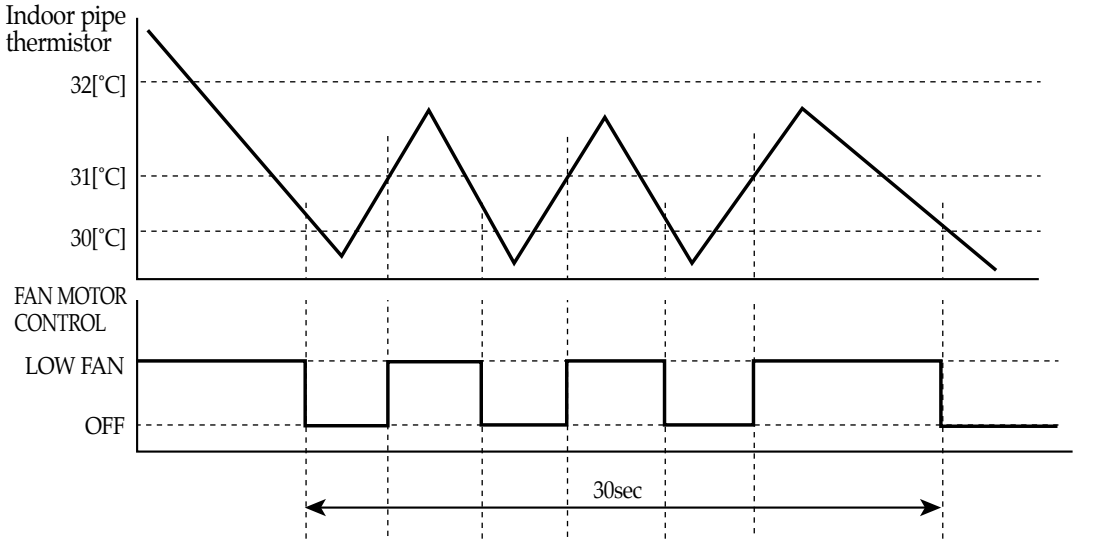


4. Cool blowing inhibiting control : In order to inhibit cool blowing during heating operation, the fan motor is operated when temperature of the indoor pipe thermistor is above the specified value.
   - The fan motor speed is controlled according to the temperature of condition of the indoor pipe thermistor.

< Compressor OFF -> Compressor ON >



< Compressor ON -> Compressor OFF >



1) When the indoor pipe thermistor temperature is increasing
   indoor pipe thermistor temperature = below 32˚C --> fan motor OFF
   indoor pipe thermistor temperature = over 32˚C --> fan motor speed "set blower speed"
2) When the indoor pipe thermistor temperature is decreasing
   indoor pipe thermistor temperature = over 30˚C --> fan motor speed "set blower speed"
   indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
3) But if the compressor is operating, the fan motor is not turned off but is operated weakly even if the indoor pipe thermistor temperature decreases.

< Compressor ON -> Compressor OFF >

indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
indoor pipe thermistor temperature = over 30˚C --> fan motor OFF
30s is passed after compressor is turned off --> fan motor OFF

3-2-9 Compressor delayed operation and 4-way valve delayed operation :

The compressor is turned on after 3 minutes from power resetting or compressor turning off during cooling or heating operation.

1) The compressor can be turned on after "3 minutes delay" from power resetting or compressor turning off.
2) The 4 way valve is turned off/on after "2 minutes and 55 seconds delay" in the on/off condition. (during heating operation)
3) The operation is stopped after "2 minutes and 55 seconds delay" in the off condition when the 4 way valve is turned on.

3. Installation and Operating Instructions

3-1 Installation

* When selecting the area for installing the unit, be sure to obtain approval of the customer.

1. Make sure that you install the unit in an area that provides good ventilation.
   The air conditioner must not be blocked by any obstacle affecting the air flow near the air inlet and air outlet.

2. Make sure that you install the unit in an area which can endure the weight and vibration of the unit.

3. Make sure that you install the unit away from heat or vapor.

4. Make sure that you install the unit in an area where the cooled air can be evenly spread in a room.

5. Make sure that you install the unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances. (obtain a clearance of at least one meter)

6. Make sure that you install the unit in an area which provides easy drainage for condensed water.

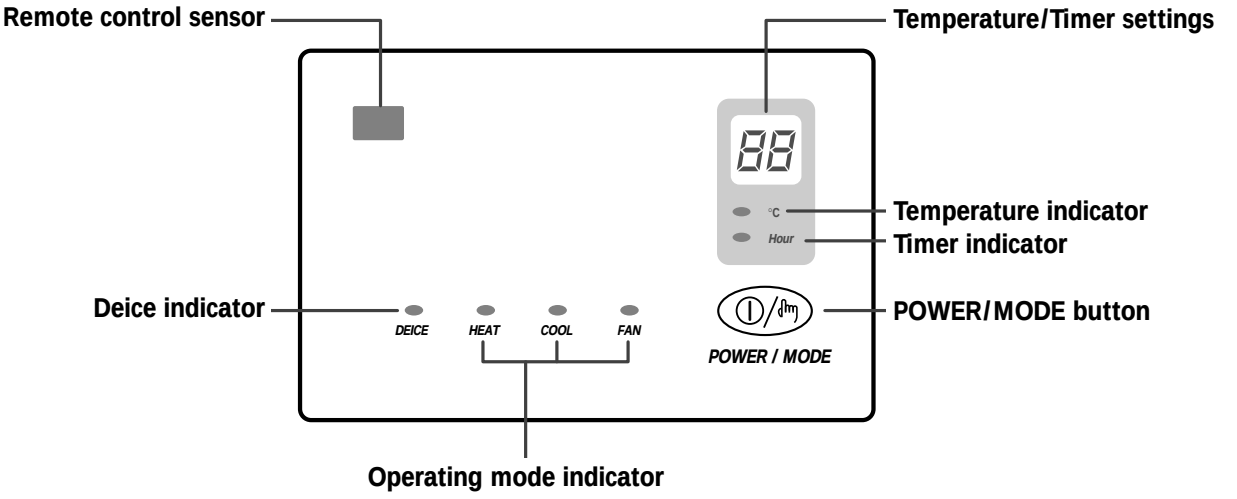
7. Make sure that you install the unit in an area not exposed to rain or direct sunlight.
   (Install a separate sunblind if exposed to direct sunlight.)

8. Do not install the unit in an area subjected to noise or vibration amplification which may affect your neighbor.
   (Fix the unit firmly if mounted in a high place.)

Caution:

Do not use the air conditioner in such areas as a greasy area(including machine oil), saline area(sea side), or sulphuric area(hot spring). When using the air conditioner in these areas, special maintenance is required. Contact your local dealer or our service center for advice.

3-2 Function Description



3-2-1 Cooling operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature -1˚C"
     * The compressor is turned on when "ambient temperature = set temperature +1˚C"
2. Default value after power reset → set temperature = 18˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 18˚C to 30˚C.

3-2-2 Heating operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control.
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature +1˚C"
     * The compressor is turned on when "ambient temperature = set temperature -1˚C"
2. Default value after power reset → set temperature = 24˚C
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 16˚C to 30˚C.

3-2-3 Fan operation mode

1. If "Fan operation mode" signal is received from remocon.
   → the compressor is immediately turned off and only fan motor is operated at set blowing speed.
   → it changes such as "HIGH → LOW → HIGH"(if Fan speed is selected).
2. The initial FAN speed is set to "HIGH".
3. The set temperature can not be indicated and set.

3-2-4 LED lamp and LED display indication in case of error detection

ERROR OPERATION	LED LAMP DISPLAY			7-SEG LED DISPLAY
	COOL	HEAT	FAN	
ROOM THERMISTOR (OPEN OR SHORT)	◐	×	×	E1 displayed
INDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	×	◐	E5 displayed
OUTDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	◐	◐	E6 displayed

Lamp ◐ —— blinking at every second (on for 0.5s and off for 0.5s)
× —— LED lamp off

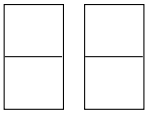
1. Set operation in case of error occurrence.
   - Malfunction of each temperature sensor (open, short)
     - Error mode display, warning sound.
     - The operation status is off.

2. The "outdoor pipe thermistor" error mode carry out checking only during heating operation and do not carry out checking during "COOLING" and "FAN" operation.

3-2-5 Panel key operation

Key discription / Key name	Key operational function	Key Type
Power/Mode	1. Operation mode change and POWER OFF(in case of model option heat pump) * at every ON - Selected as "OFF –> COOL –> HEAT –> FAN –> OFF". (Default=OFF) * Continuous operation is not available.	TACT

3-2-6 LED lamp operation specifications

LAMP name	Operations specifications
COOL	The mode is set to "COOL" –> ON Others –> OFF
HEAT	The mode is set to "HEAT" –> ON Others –> OFF
FAN	The mode is set to "FAN" –> ON Others –> OFF
˚C	The set temperature is displayed or set -> ON Others –> OFF
HR	During setting of the convenient reserve (OFF TIMER) time -> blinking After setting of the convenient reserve (OFF TIMER) time -> ON Others –> OFF
DEICE	Till the "DEICING" operation is completed during heating opertion -> ON Others –> OFF
 (1) (2)	In case of (set) temperature display -> NO. (1) 7 seg. LED display indicates temperature of the tens digit (˚C, ˚F) -> NO. (2) 7 seg. LED display indicates temperature of the units digit (˚C, ˚F) In case of time (OFF TIMER) display -> NO. (1) 7 seg. LED display indicates time of the tens digit -> NO. (2) 7 seg. LED display indicates time of the units digit

3-2-7 Resistor values table of “ROOM THERMISTOR”, “INDOOR PIPE THERMISTOR” and “OUTDOOR PIPE THERMISTOR” for each temperature

1. Room thermistor (SPEC : 103AT)

Temperature [˚C]	THERMISTOR RESISTOR [Kohm]
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13	15.900
12	16.550
11	17.240
10	17.960
9	18.700
8	19.480
7	20.290
6	21.150
5	22.050
4	22.990
3	23.900
2	25.030
1	26.130
0	27.280
-1	28.470
-2	29.720
-3	31.040
-4	32.430
-5	33.890
-6	35.430
-7	37.050
-8	38.760
-9	40.560

2. Indoor pipe Thermistor and Outdoor pipe Thermistor (SPEC : 10KD)

Temperature [°C]	THERMISTOR RESISTOR [Kohm]
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Temperature [°C]	THERMISTOR RESISTOR [Kohm]
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18	13.78
17	14.44
16	15.14
15	15.88
14	16.66
13	17.48
12	18.36
11	19.28
10	20.25
9	21.28
8	22.38
7	23.54
6	24.76
5	26.06
4	27.44
3	28.90
2	30.45
1	32.10
0	33.85
-1	35.66
-2	37.59
-3	39.64
-4	41.82
-5	44.14
-6	46.60
-7	49.22
-8	52.01
-9	54.98
-10	58.14

3-2-8 About the safety devices

1. High temperature release : If temperature of the indoor pipe thermistor increases over the specified value during heating operation, following operation is carried out for safety of the equipment.

   ┌ A condition : temperature of indoor pipe thermistor is below 47˚C
   ├ B condition : temperature of indoor pipe thermistor is between 58˚C and 63˚C
   └ C condition : temperature of indoor pipe thermistor is over 63˚C

   1) High temperature release operation OFF condition = A condition
      -> compressor ON (only in THERMO ON condition)
      -> fan motor speed = set fan speed and cool blowing inhibiting operation
   2) High temperature release operation ON condition = B condition
      -> compressor ON
      -> fan motor speed = HIGH operation if it was LOW
                         = HIGH operation if it was HIGH
   3) High temperature release operation ON condition = C condition
      -> fan motor speed = set fan speed
      -> compressor OFF

2. Low temperature release : If temperature of the indoor pipe thermistor decreases below the specified value during cooling operation, following operation is carried out for safety of the equipment.

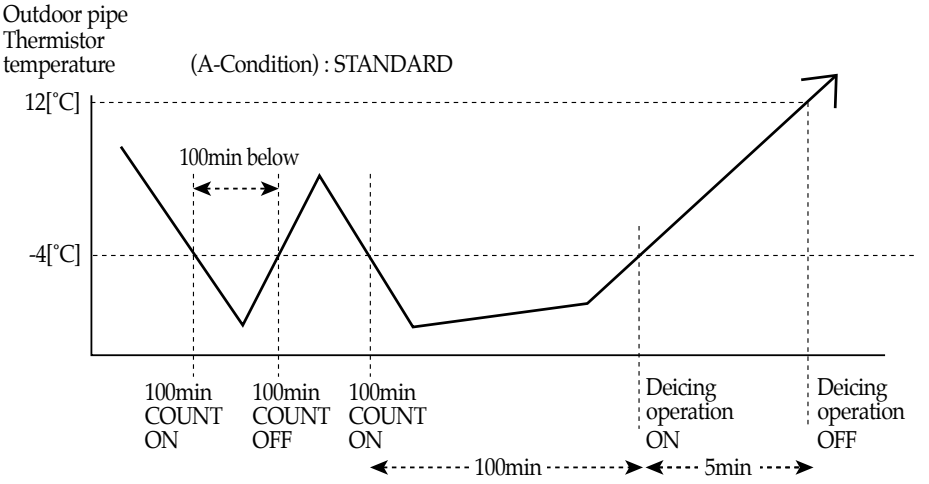
   ┌ A condition : temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes
   └ B condition : temperature of indoor pipe thermistor is over 5˚C

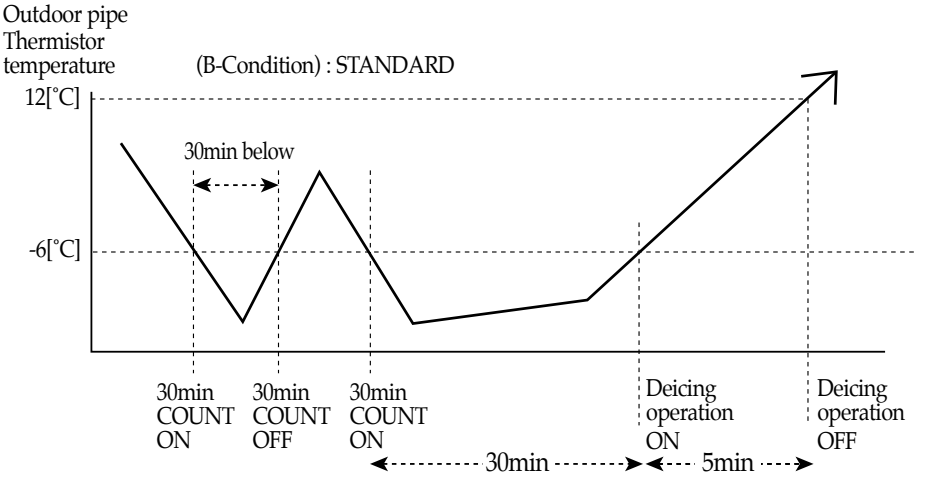
   1) Low temperature release ON condition = A condition
      -> compressor OFF
      -> fan motor "set fan speed"
   2) Low temperature release OFF condition = B condition
      -> The compressor is turned on if ON condition is satisfied after comparing the ambient temperature with the set temperature
      -> fan motor "set fan speed"

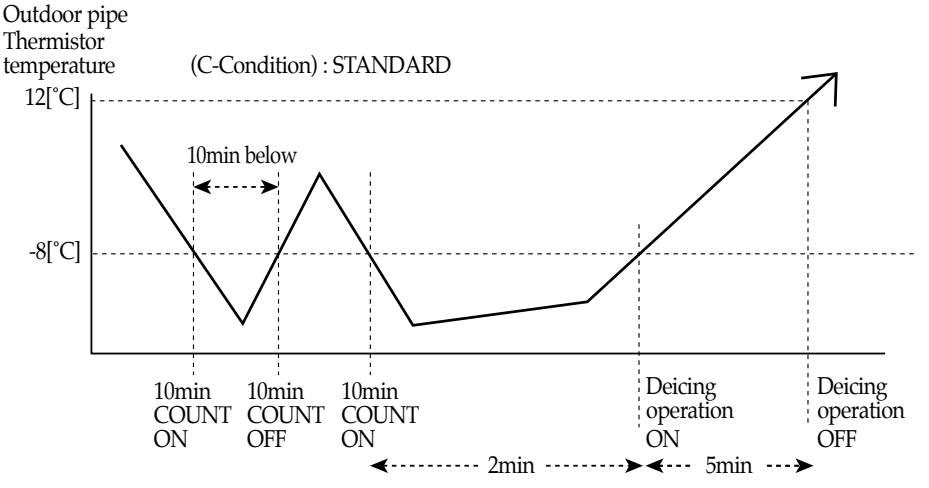
[Detailed description]

1) If temperature of indoor pipe thermistor is below -1˚C for more than 6 minutes, the fan motor continues to operate at the set fan speed and the compressor is turned off(Low temperature release operation)
2) If temperature of the indoor pipe thermistor increases over +5˚C during low temperature release operation, normal operation is recovered
   : compressor ON, fan mtor set fan speed -> Low temperature release operation OFF
3) If temperature of indoor pipe thermistor increases over 0˚C during counting 6 minutes below -1˚C, the counter is reset.

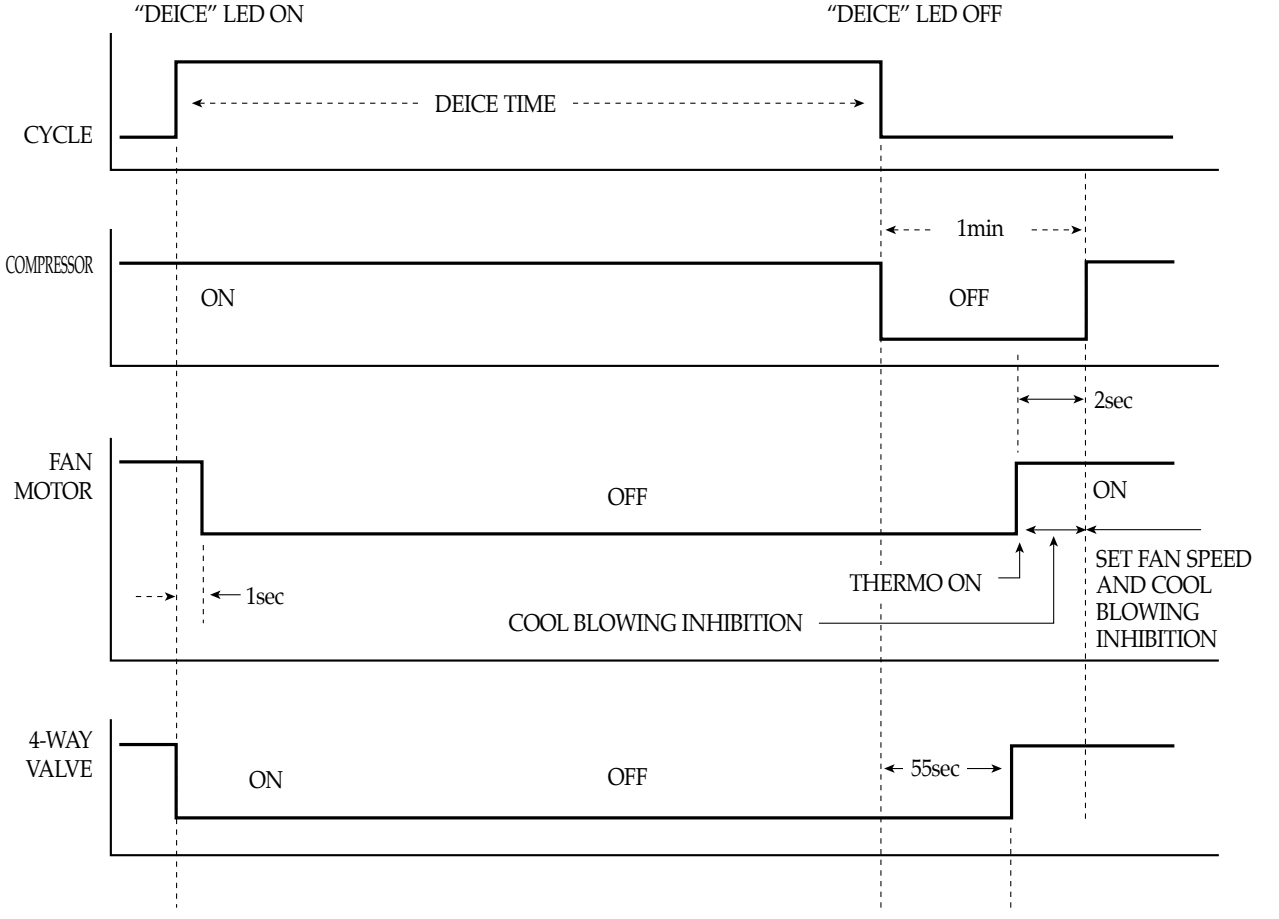
3. Deicing operation : If temperature of the outdoor pipe thermistor decreases below the specified value during heating operation, following operation is carried out for safety of the equipment.





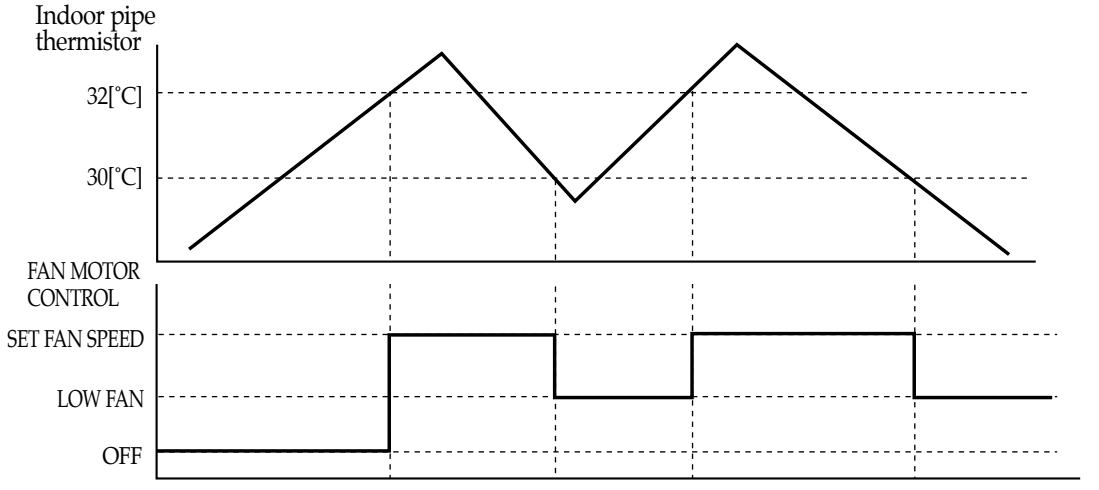


1) Deicing detecting condition
   - If one of A, B and C conditions is satisfied, deicing operation is carried out.(AUBUC)
   - If counting time is overlapped due to detection reference temperature change during counting of the deicing condition, deicing operation starts when the counting time is finished first.
   - The maximum counting time is 100 minutes.
     - During deicing operation, the left and right swing motor is turned off and stops at the position before swing.
     - If operation is turned off during deicing operation, it is finished and the compressor is turned off.
     -> Deice lamp ON, fan motor OFF.
2) Display indication.
   - The deice lamp is turned on additionally during deicing cycle.
   - Only the deice lamp is turned off when deicing is finished.
3) In case of turning off during deicing operation.
   - The compressor is turned off after finishing the deicing operation.
   - The deice lamp is turned on during deicing cycle and is turned off when deicing is finished.
4) In case of changing mode to cooling operation during deicing operation.
   - Cooling operation is carried out after carrying out deicing operation.
   - After the compressor is turned off and 1 minutes is passed, it is restarted.
5) Load operation during deicing operation.

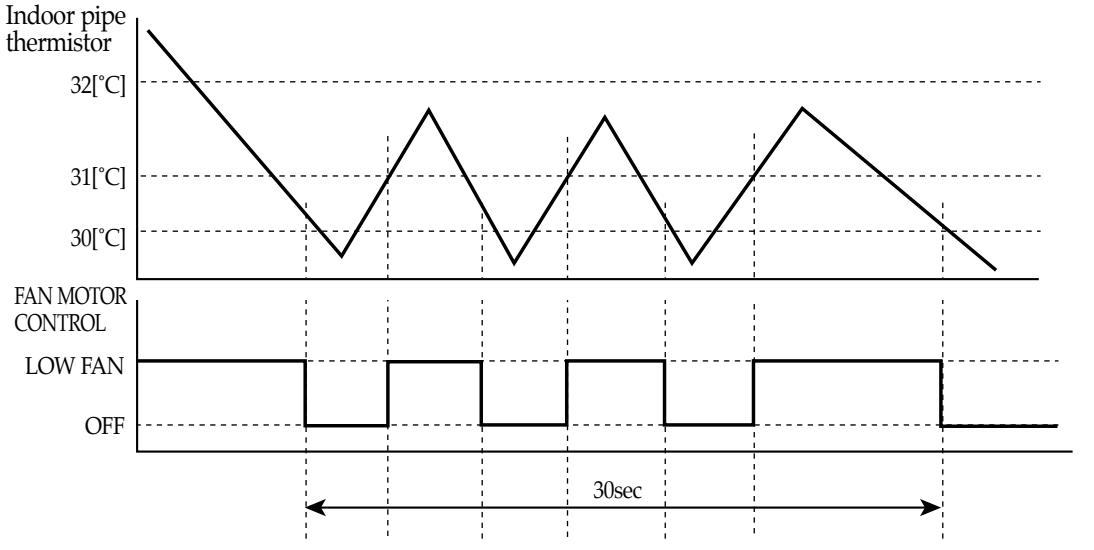


4. Cool blowing inhibiting control : In order to inhibit cool blowing during heating operation, the fan motor is operated when temperature of the indoor pipe thermistor is above the specified value.
   - The fan motor speed is controlled according to the temperature of condition of the indoor pipe thermistor.

< Compressor OFF -> Compressor ON >



< Compressor ON -> Compressor OFF >



1) When the indoor pipe thermistor temperature is increasing
   indoor pipe thermistor temperature = below 32˚C --> fan motor OFF
   indoor pipe thermistor temperature = over 32˚C --> fan motor speed "set blower speed"
2) When the indoor pipe thermistor temperature is decreasing
   indoor pipe thermistor temperature = over 30˚C --> fan motor speed "set blower speed"
   indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
3) But if the compressor is operating, the fan motor is not turned off but is operated weakly even if the indoor pipe thermistor temperature decreases.

< Compressor ON -> Compressor OFF >

indoor pipe thermistor temperature = below 30˚C --> fan motor speed "Low"
indoor pipe thermistor temperature = over 30˚C --> fan motor OFF
30s is passed after compressor is turned off --> fan motor OFF

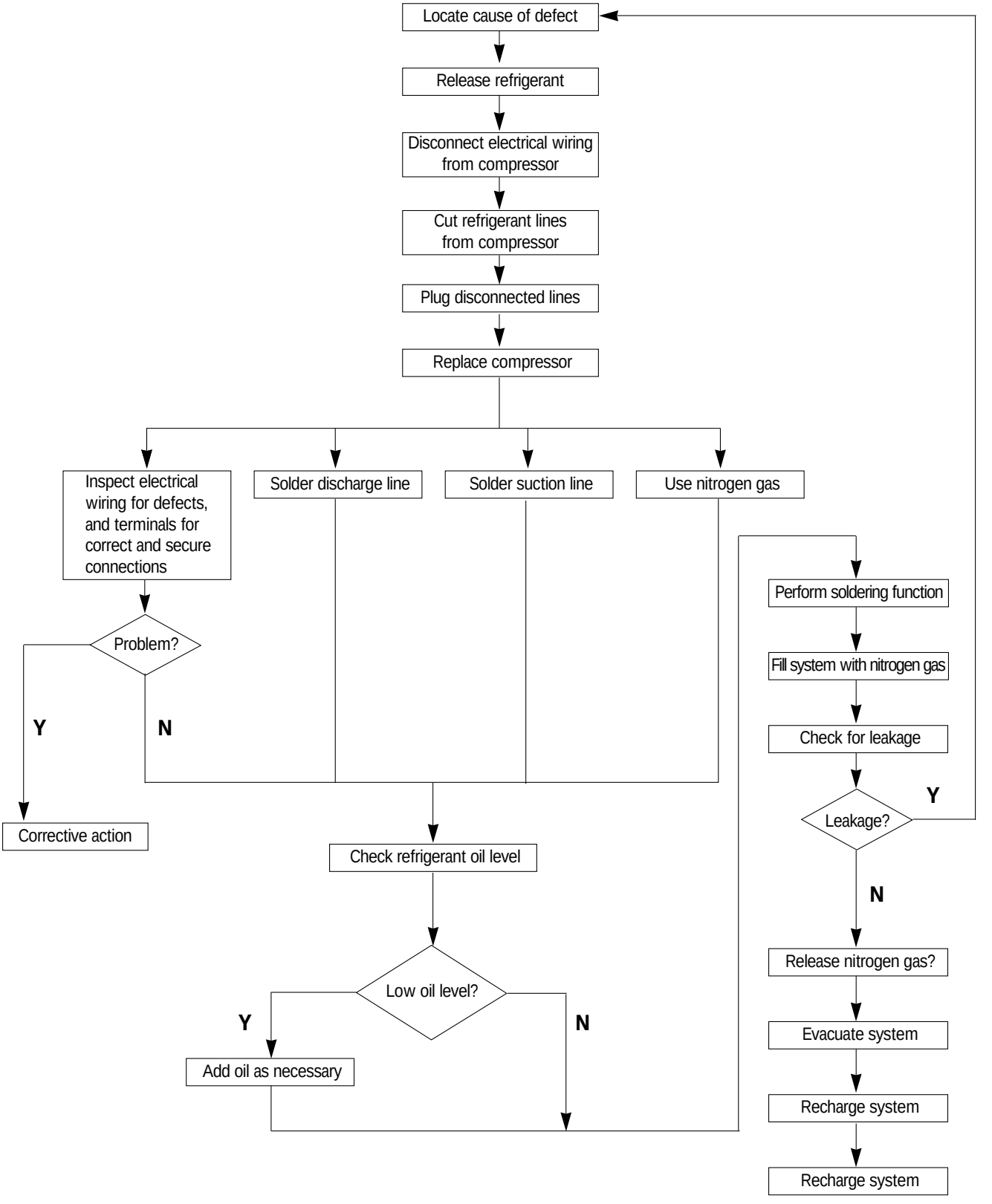
3-2-9 Compressor delayed operation and 4-way valve delayed operation :

The compressor is turned on after 3 minutes from power resetting or compressor turning off during cooling or heating operation.

1) The compressor can be turned on after "3 minutes delay" from power resetting or compressor turning off.
2) The 4 way valve is turned off/on after "2 minutes and 55 seconds delay" in the on/off condition. (during heating operation)
3) The operation is stopped after "2 minutes and 55 seconds delay" in the off condition when the 4 way valve is turned on.

4. Disassembly and Reassembly

4-1 Compressor Replacement Flow Chart



4-2 Checking the oil

Fill the transparent container with 10cc of oil, and then conduct the test.

4-2-1 Oil quality

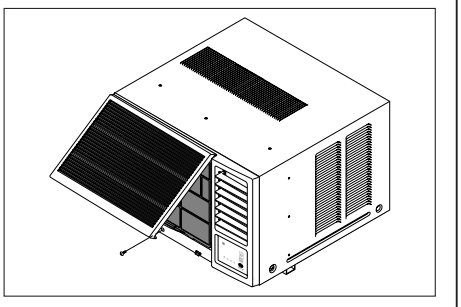
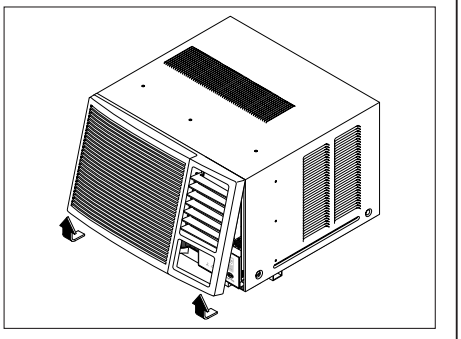
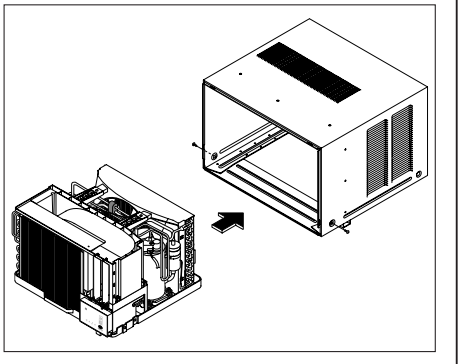
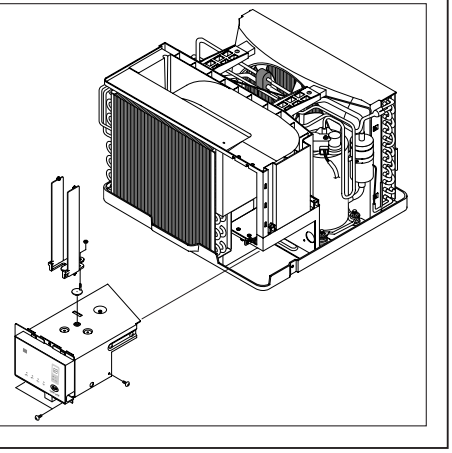
Refrigerant Cycle	Oil Condition		Remarks
	Color	Odor	
Normal	Light Yellow	No Odor	Return with the system
Over-heated	Brown	-	Oil Change
Compressor damage	Dark brown	Pungent oil	Oil Change

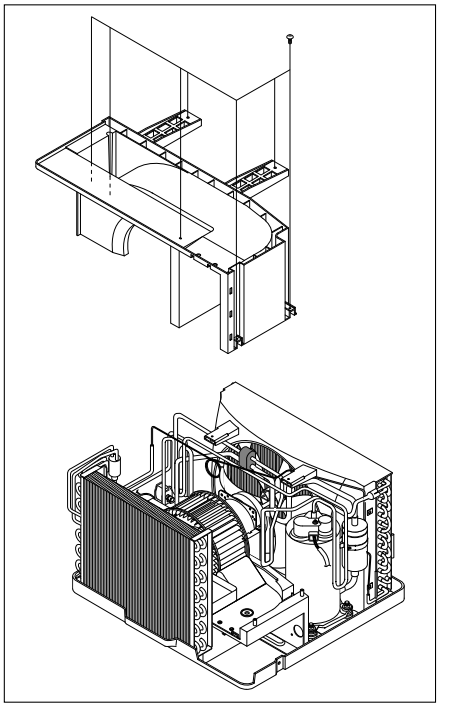
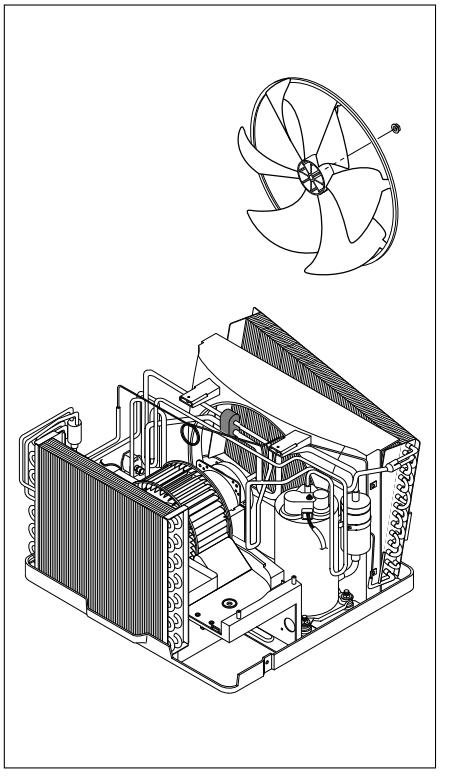
4-2-2 Replacing and refilling the refrigerant oil

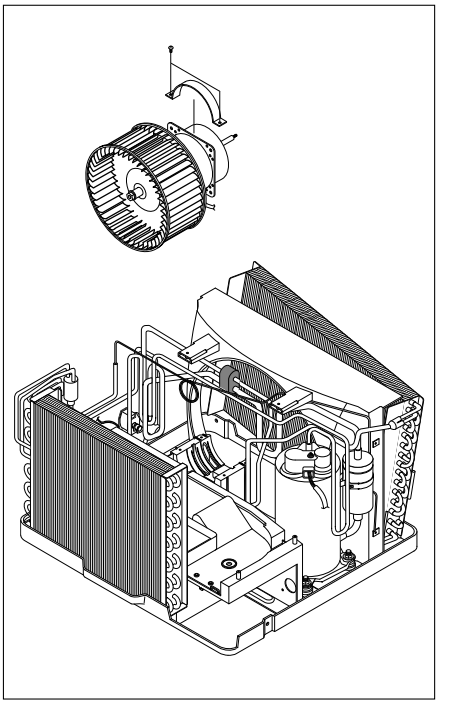
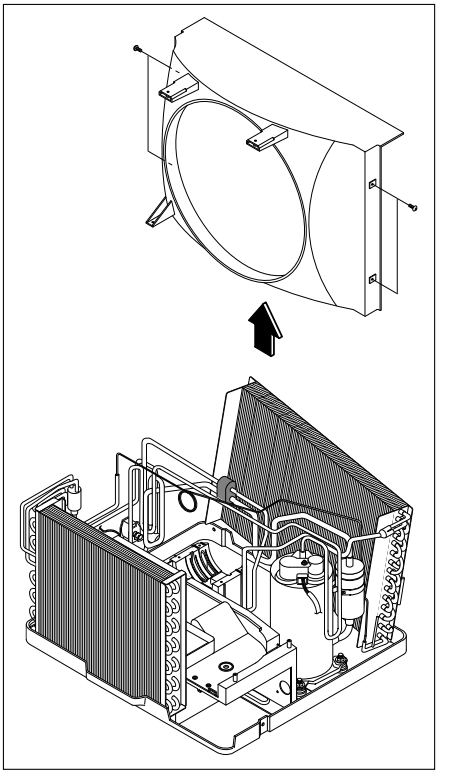
1. Replacing the compressor - Do not fill the system with oil as the compressor is already charged.
2. Replacing the condenser - Refill 50cc.
3. Replacing the evaporator - Refill 50cc.
4. Replacing the refrigerant - Refill 30cc.
5. The high pressure side is filled up with oil after the vacuum is completed.
6. When the refrigerant leaks, it is generally not necessary to refill the oil if the leakage is not severe.

4-4 Disassembly and Reassembly Procedure

Stop operating the air conditioner, and pull out the power cord before repair.

No.	Part name	Procedures	Remarks
①	Ass'y Grill	1. Pull the grille air inlet and remove the screw on the grille 2. Hold the lower part of the grill with two hands while pressing down on both sides of the lower part of the cabinet, pull it forward by about 30, and then lift it up for removal.	 
②	Ass'y Cabinet	1. Remove the screws on both sides of the cabinet to disconnect the cabinet and frame. 2. Pull the handle on the front side of the bottom, and remove the unit from the cabinet.	
③	Ass'y Control	1. Remove 6 screws, and earth wire screw. 2. Remove four lead wire assemblies and the deice sensor from the condenser. 3. Remove the blade V and arm blade. 4. Take out the control box forward.	

No.	Part name	Procedures	Remarks
④	Frame Up	1. Remove 10 screws on the Frame Up.	
⑤	Case Cond & Propeller Fan	1. Remove two screws on the bottom side, and 5 screws on the case cond. 2. Remove the nut flange, and remove the propellr fan	

No.	Part name	Procedures	Remarks
⑥	Blower & Motor	1. Remove two screws on the clip motor, and remove the clip motor. 2. Move the motor & blower toward the evap, and lift up the motor & blower from the frame low.	
⑦	Cond Casing	1. Remove the cond casing	

5. Troubleshooting

Check the basic checkpoints first to determine whether it is machine trouble or a problem in the operation method. When it is not related to the basic checkpoints, perform checking in accordance with the procedures of troubleshooting by symptom.

5-1 Basic Checkpoints for Troubleshooting

1) Is the voltage of the power source appropriate ?
   (1)It should be within the range of AC 198V ~ 264V.
   (2)The air conditioner may not operate properly when the voltage is out of this range.
2) Is the connection with the fan motor, compressor wire, and starting condenser appropriately made ?
3) The symptoms listed in the table below are not indicative of machine trouble.

Symptom	Cause and check
No operation	• Check whether there is power failure or the power plug is pulled out. • Check whether the unit is stopped as a result of completion of the sleep time. • Pull out the power plug for ten seconds, and then insert it again.
Air flows, but no cooling no Heating	• Check whether the Air filter is clogged with dust or is dirty. • Check whether the desired temperature is too high. Set the desired temperature to a lower level than the current temperature.(Cooling) • Check whether it is in "FAN" mode. • Check whether the desired temperature is too low. Set the desired temperature to a higher level than the current temperature.(Heating) • Check whether the unit is deicing.
The remocon does not operate	• Check whether battery is completely depleted. • Check whether the battery is properly inserted. • Check whether the receiving window of the remocon for the assembly panel PCB is blinded. • Check whether the remocon is affected by jamming due to a neon sign.
No temperature setting	• Check whether the unit is in "FAN" mode. (In "FAN" mode, only the current temperature is displayed, and the desired temperature is not set.)

• Checking and Display of Fault Area

ERROR OPERATION	LED LAMP			7-SEG LED DISPLAY
	COOL	HEAT	FAN	
ROOM THERMISTOR (OPEN OR SHORT)	◐	×	×	E1 displayed
INDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	×	◐	E5 displayed
OUTDOOR PIPE THERMISTOR (OPEN OR SHORT)	◐	◐	◐	E6 displayed

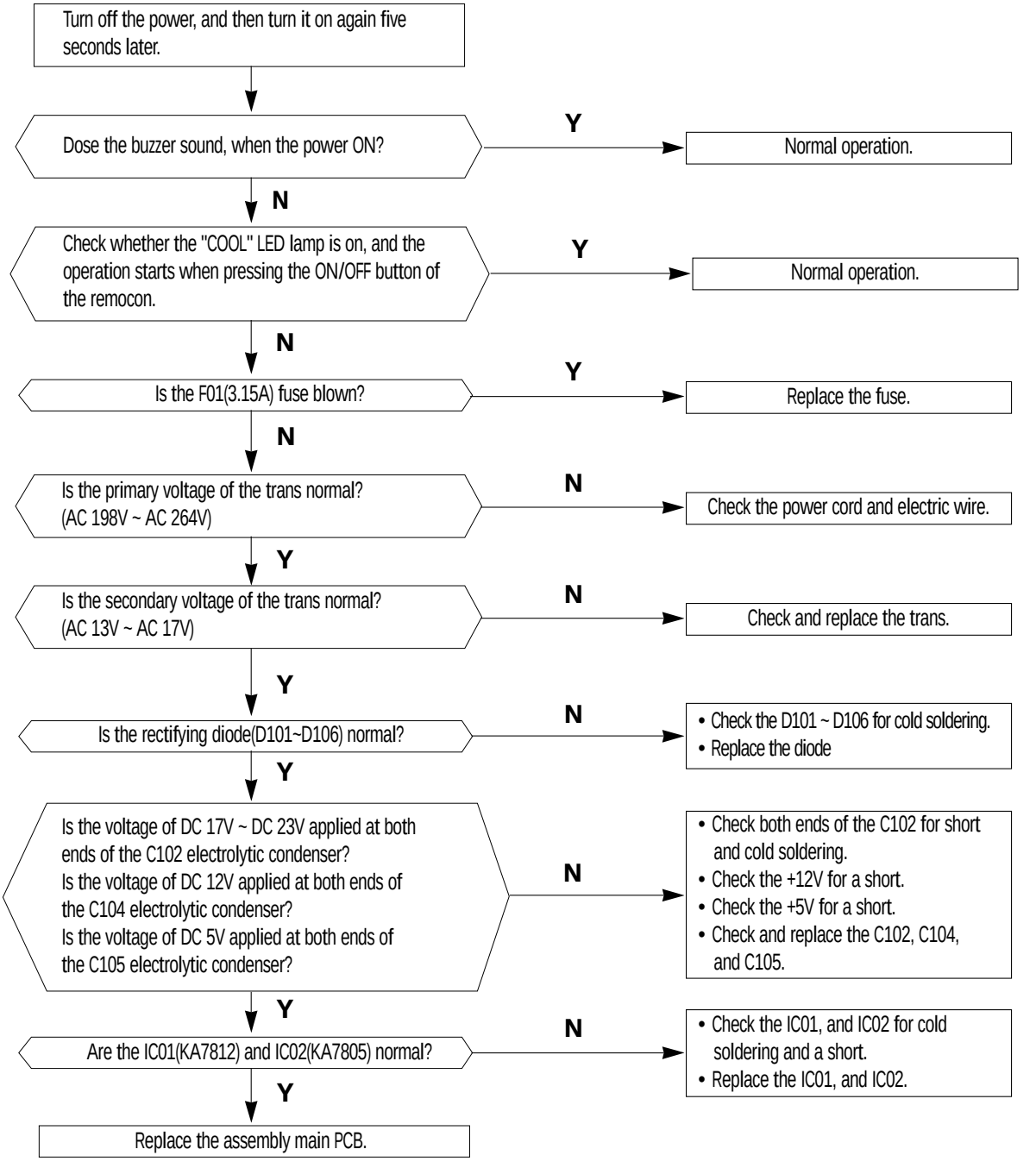
* Lamp ◐ --- blinking at every second (on for 0.5s and off for 0.5s)
× --- LED Lamp off

5-2 Troubleshooting by Symptom

5-2-1 No power

1) Check points

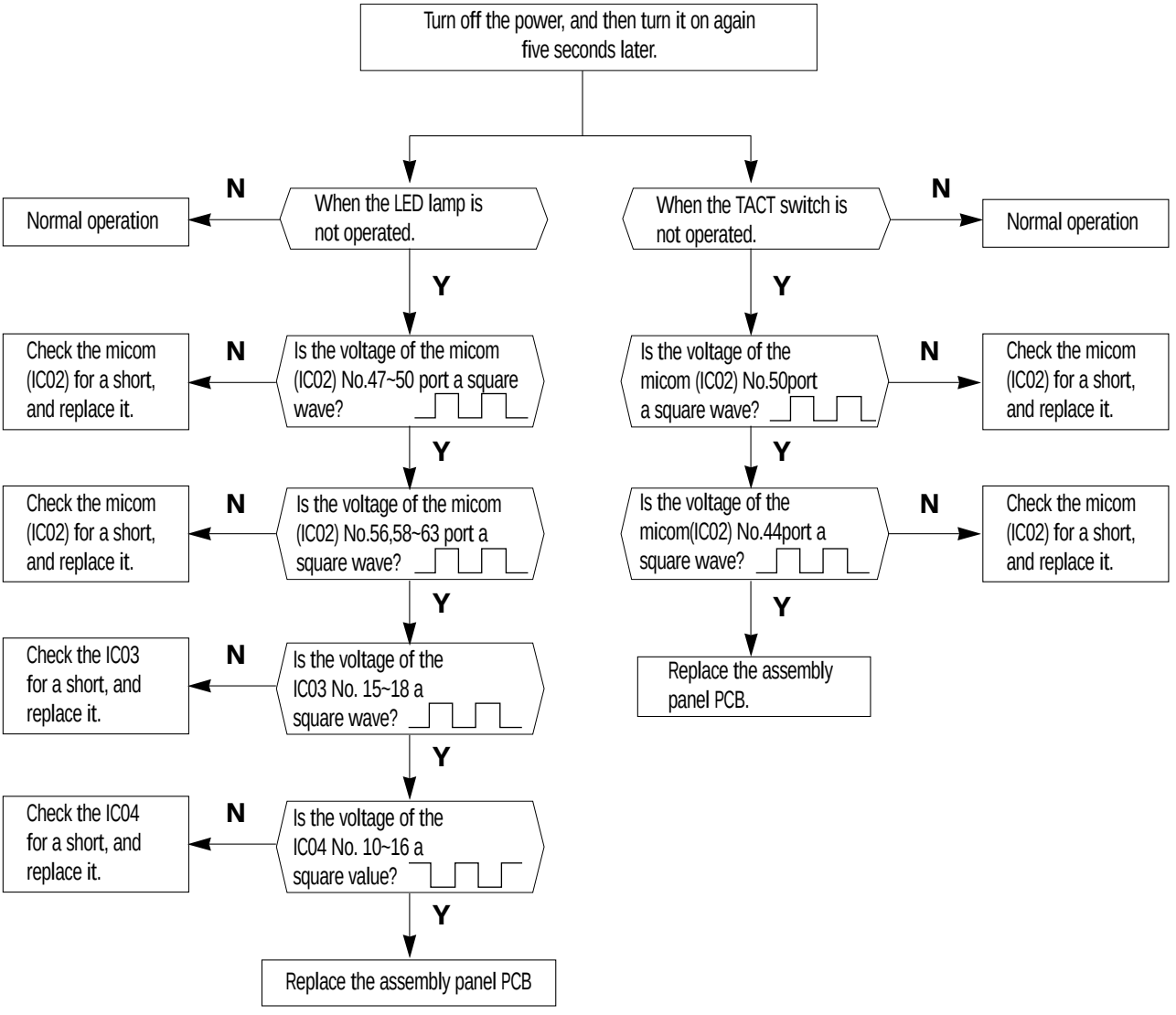
(1) Is the voltage of the power source normal ? (AC 198V ~ AC 264V)
(2) Is the electric wire in good contact ?(CN 71, RY 71)
(3) Is the output voltage of the IC01(KA 7812) normal ?(DC 11.5V ~ DC 12.5V)
(4) Is the output voltage of the IC02(KA 7805) normal ?(DC 4.5V ~ DC 5.5V)
(5) Is the connection of the assembly main PCB, and assembly panel PCB in good contact?(CN11, CN12)


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power ON?
Y
Normal operation.
N
Check whether the "COOL" LED lamp is on, and the operation starts when pressing the ON/OFF button of the remocon.
Y
Normal operation.
N
Is the F01(3.15A) fuse blown?
Y
Replace the fuse.
N
Is the primary voltage of the trans normal? (AC 198V ~ AC 264V)
N
Check the power cord and electric wire.
Y
Is the secondary voltage of the trans normal? (AC 13V ~ AC 17V)
N
Check and replace the trans.
Y
Is the rectifying diode(D101~D106) normal?
N
• Check the D101 ~ D106 for cold soldering.
• Replace the diode
Y
Is the voltage of DC 17V ~ DC 23V applied at both ends of the C102 electrolytic condenser?
Is the voltage of DC 12V applied at both ends of the C104 electrolytic condenser?
Is the voltage of DC 5V applied at both ends of the C105 electrolytic condenser?
N
• Check both ends of the C102 for short and cold soldering.
• Check the +12V for a short.
• Check the +5V for a short.
• Check and replace the C102, C104, and C105.
Y
Are the IC01(KA7812) and IC02(KA7805) normal?
N
• Check the IC01, and IC02 for cold soldering and a short.
• Replace the IC01, and IC02.
Y
Replace the assembly main PCB.

5-2-2 When the assembly panel PCB is not operated

1) Check points

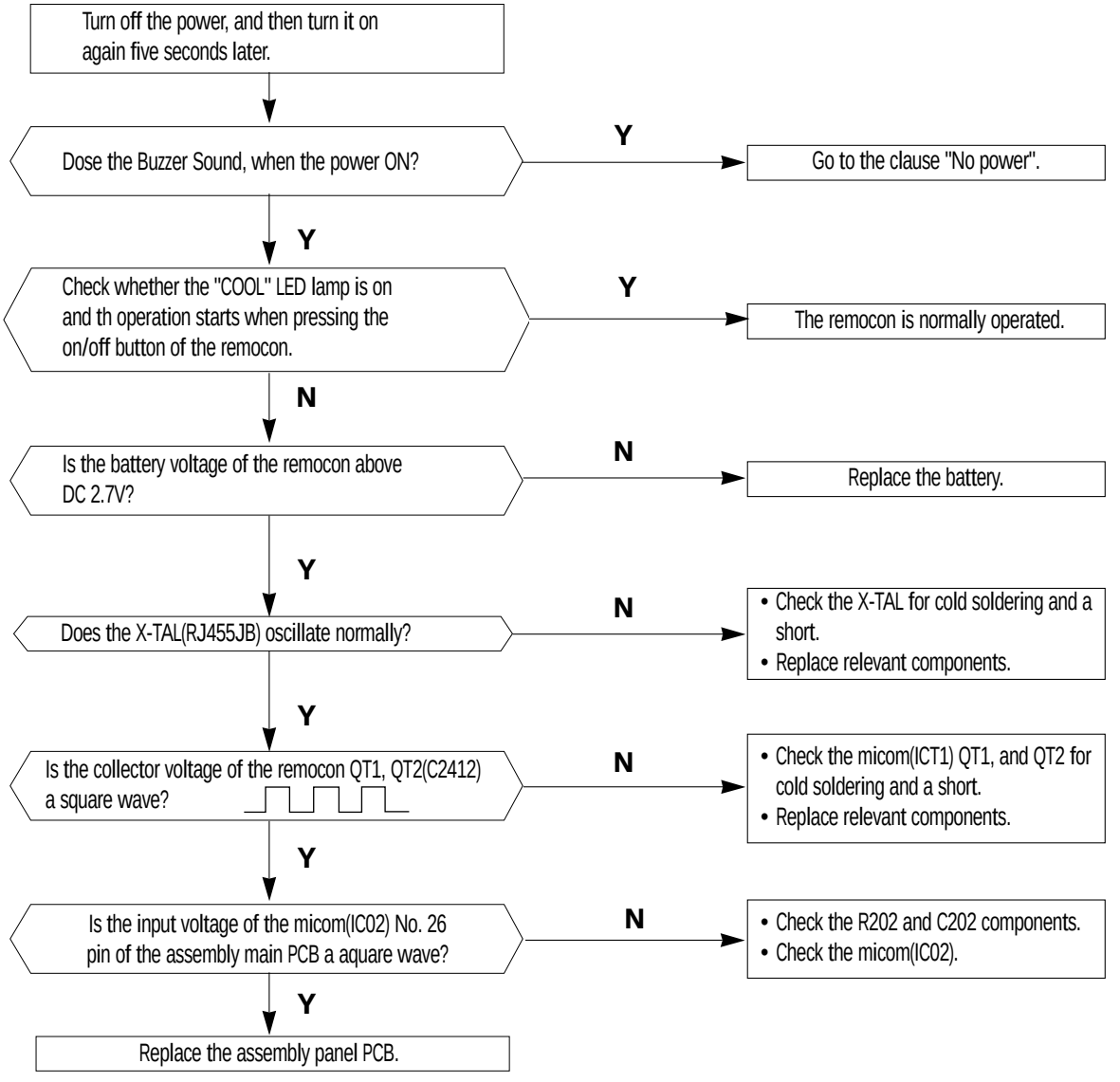
(1) Is the voltage of the power source normal ?(AC 198V ~ AC 264V)
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the connection of the assembly main PCB, and assembly panel PCB in good contact? (CN11, CN12)
(4) Is the voltage of +12V normal ?(CN 12 No 1 pin and No 12 pin : +12V±0.5V)
(5) Is the voltage of +5V normal ?(CN12 No 2 pin and No 12 pin : +5V±0.5V)


Turn off the power, and then turn it on again five seconds later.
When the LED lamp is not operated.
N
Normal operation
Y
Is the voltage of the micom (IC02) No.47~50 port a square wave?
N
Check the micom (IC02) for a short, and replace it.
Y
Is the voltage of the micom (IC02) No.56,58~63 port a square wave?
N
Check the micom (IC02) for a short, and replace it.
Y
Is the voltage of the IC03 No. 15~18 a square wave?
N
Check the IC03 for a short, and replace it.
Y
Is the voltage of the IC04 No. 10~16 a square value?
N
Check the IC04 for a short, and replace it.
Y
Replace the assembly panel PCB
When the TACT switch is not operated.
N
Normal operation
Y
Is the voltage of the micom (IC02) No.50port a square wave?
N
Check the micom (IC02) for a short, and replace it.
Y
Is the voltage of the micom(IC02) No.44port a square wave?
N
Check the micom (IC02) for a short, and replace it.
Y
Replace the assembly panel PCB.

5-2-3 When the remocon is not operated

1) Check points

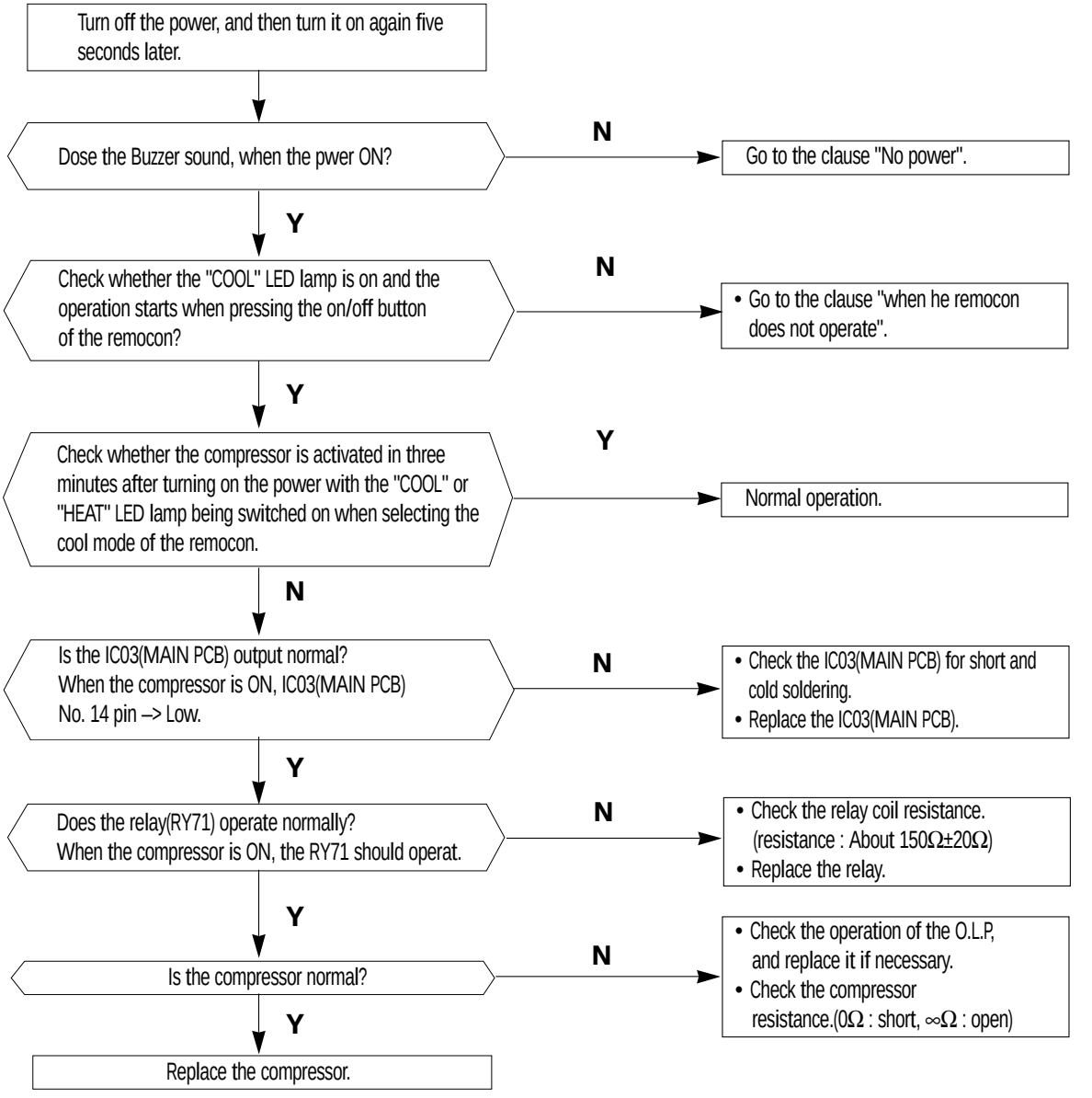
(1) Is the voltage of the power source normal ? (AC 198 ~ AC 264V)
(2) Is the electric wire in good contact ? (CN71, RY71)
(3) Is the assembly main PCB in good contact with the assembly panel PCB?(CN11, CN12)
(4) Is the voltage of +12V and +5V of the assembly panel PCB normal?
(CN12 No 1 pin and No 12 pin : +12V, No 2 pin and No 12 pin : +5V)
(5) Is battery voltage of the remocon above DC 2.7V?


Turn off the power, and then turn it on again five seconds later.
Dose the Buzzer Sound, when the power ON?
Y
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and th operation starts when pressing the on/off button of the remocon.
Y
The remocon is normally operated.
N
Is the battery voltage of the remocon above DC 2.7V?
N
Replace the battery.
Y
Does the X-TAL(RJ455JB) oscillate normally?
N
• Check the X-TAL for cold soldering and a short.
• Replace relevant components.
Y
Is the collector voltage of the remocon QT1, QT2(C2412) a square wave?
N
• Check the micom(ICT1) QT1, and QT2 for cold soldering and a short.
• Replace relevant components.
Y
Is the input voltage of the micom(IC02) No. 26 pin of the assembly main PCB a aquare wave?
N
• Check the R202 and C202 components.
• Check the micom(IC02).
Y
Replace the assembly panel PCB.

5-2-4 When the compressor is not operated

1) Check points

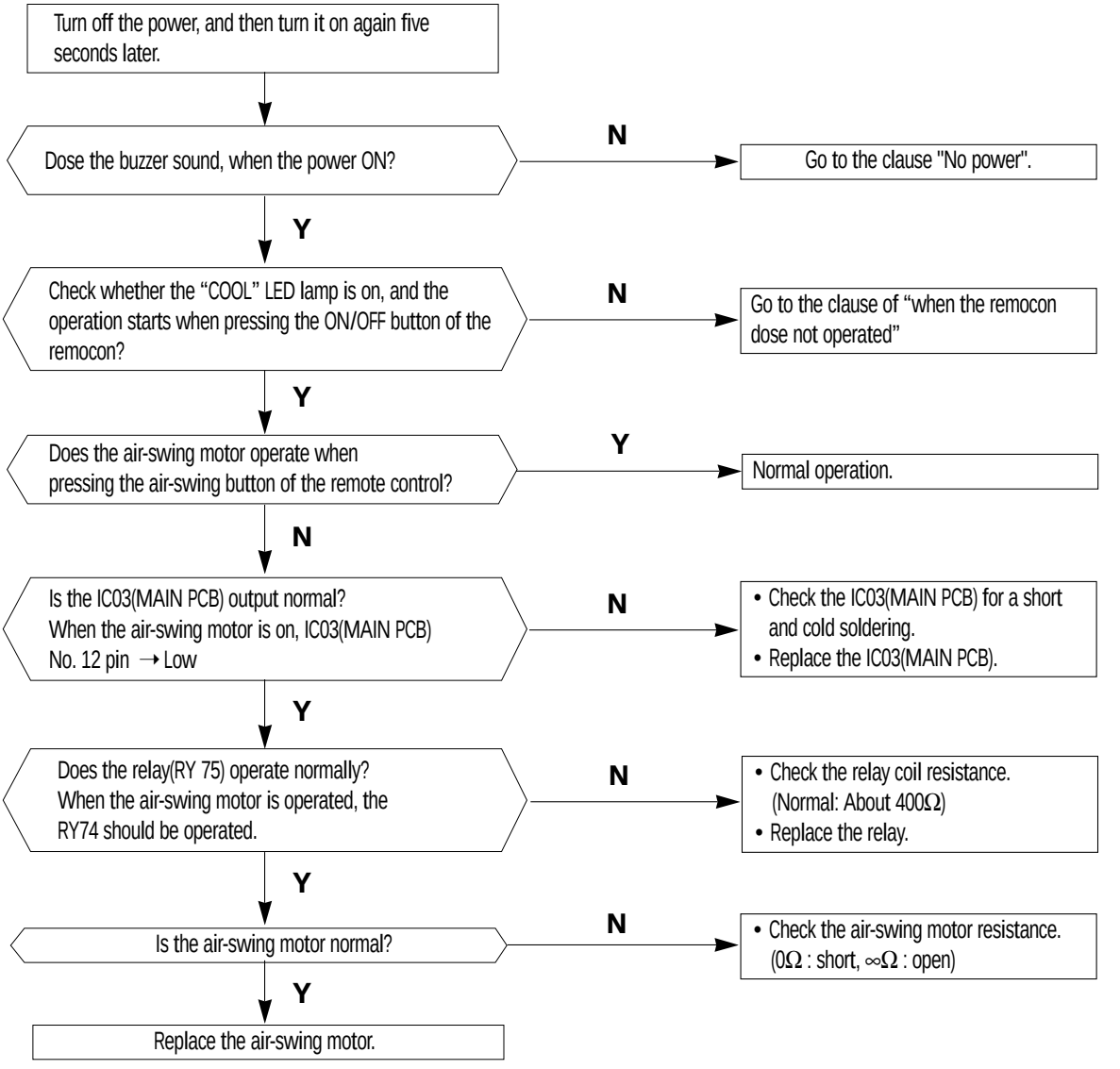
(1) Is the voltage of the power source normal ? (AC 198V ~ AC 264V)
(2) Is the desired temperature lower than the indoor temperature in the “COOL” mode? (Compressor stopped)
(3) Is the desired temperature higher than the indoor temperature in the “HEAT” mode? (Compressor stopped)
(4) Is the starting condenser in good contact?
(5) Is the electric wire in good contact ? (CN71, RY71)
(6) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal ?


Turn off the power, and then turn it on again five seconds later.
Dose the Buzzer sound, when the pwer ON?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and the operation starts when pressing the on/off button of the remocon?
N
• Go to the clause "when he remocon does not operate".
Y
Check whether the compressor is activated in three minutes after turning on the power with the "COOL" or "HEAT" LED lamp being switched on when selecting the cool mode of the remocon.
Y
Normal operation.
N
Is the IC03(MAIN PCB) output normal?
When the compressor is ON, IC03(MAIN PCB) No. 14 pin –> Low.
N
• Check the IC03(MAIN PCB) for short and cold soldering.
• Replace the IC03(MAIN PCB).
Y
Does the relay(RY71) operate normally?
When the compressor is ON, the RY71 should operat.
N
• Check the relay coil resistance. (resistance : About 150Ω±20Ω)
• Replace the relay.
Y
Is the compressor normal?
N
• Check the operation of the O.L.P, and replace it if necessary.
• Check the compressor resistance.(0Ω : short, ∞Ω : open)
Y
Replace the compressor.

5-2-5 When the air swing motor is not operated

1) Check points

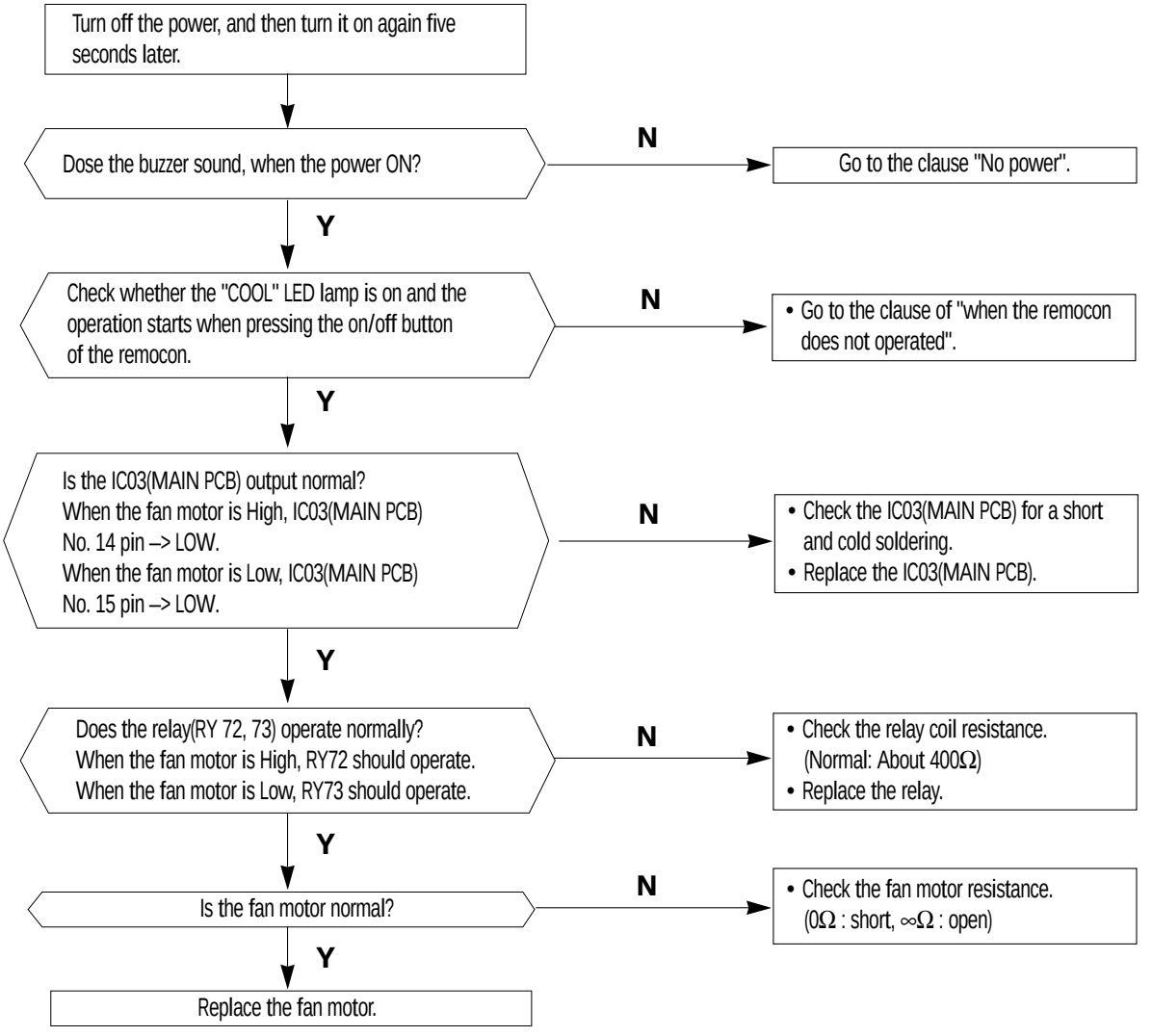
(1) Is the voltage of the power source normal ?(AC198V ~ AC264V)
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the swing motor conector in good contact?(CN71)
(4) Is the terminal connector to the swing motor in good contact?
(5) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal?


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power ON?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on, and the operation starts when pressing the ON/OFF button of the remocon?
N
Go to the clause of "when the remocon dose not operated"
Y
Does the air-swing motor operate when pressing the air-swing button of the remote control?
Y
Normal operation.
N
Is the IC03(MAIN PCB) output normal?
When the air-swing motor is on, IC03(MAIN PCB) No. 12 pin → Low
N
• Check the IC03(MAIN PCB) for a short and cold soldering.
• Replace the IC03(MAIN PCB).
Y
Does the relay(RY 75) operate normally?
When the air-swing motor is operated, the RY74 should be operated.
N
• Check the relay coil resistance. (Normal: About 400Ω)
• Replace the relay.
Y
Is the air-swing motor normal?
N
• Check the air-swing motor resistance. (0Ω : short, ∞Ω : open)
Y
Replace the air-swing motor.

5-2-6 When the fan motor does not operated

1) Check points

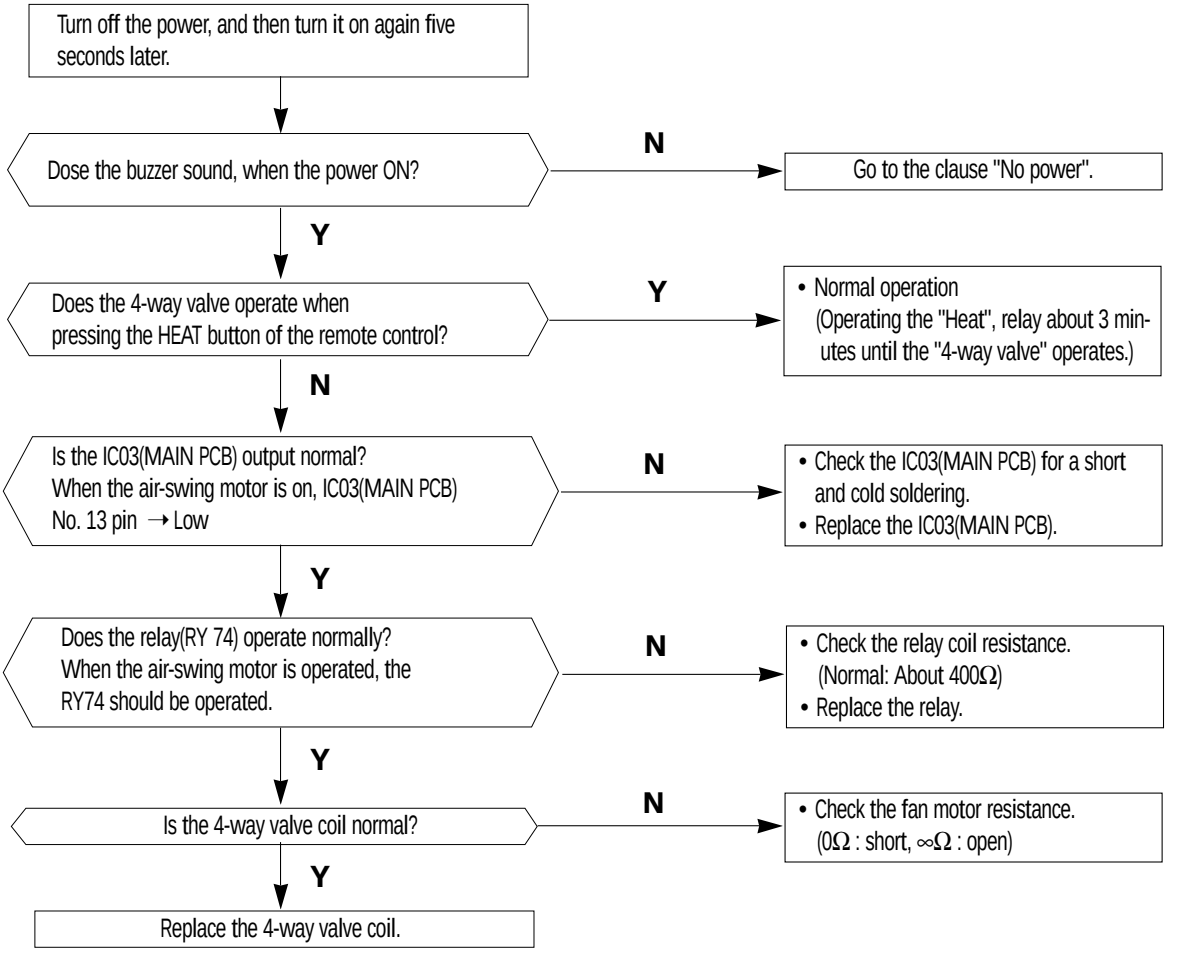
(1) Is the voltage of the power source normal ?(AC198V ~ AC264V)
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the starting condenser in good contact?
(4) Is the fan motor connector in good contact?(CN73)
(5) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal ?


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power ON?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and the operation starts when pressing the on/off button of the remocon.
N
• Go to the clause of "when the remocon does not operated".
Y
Is the IC03(MAIN PCB) output normal?
When the fan motor is High, IC03(MAIN PCB) No. 14 pin –> LOW.
When the fan motor is Low, IC03(MAIN PCB) No. 15 pin –> LOW.
N
• Check the IC03(MAIN PCB) for a short and cold soldering.
• Replace the IC03(MAIN PCB).
Y
Does the relay(RY 72, 73) operate normally?
When the fan motor is High, RY72 should operate.
When the fan motor is Low, RY73 should operate.
N
• Check the relay coil resistance. (Normal: About 400Ω)
• Replace the relay.
Y
Is the fan motor normal?
N
• Check the fan motor resistance. (0Ω : short, ∞Ω : open)
Y
Replace the fan motor.

5-2-7 When the 4-way valve is not operated

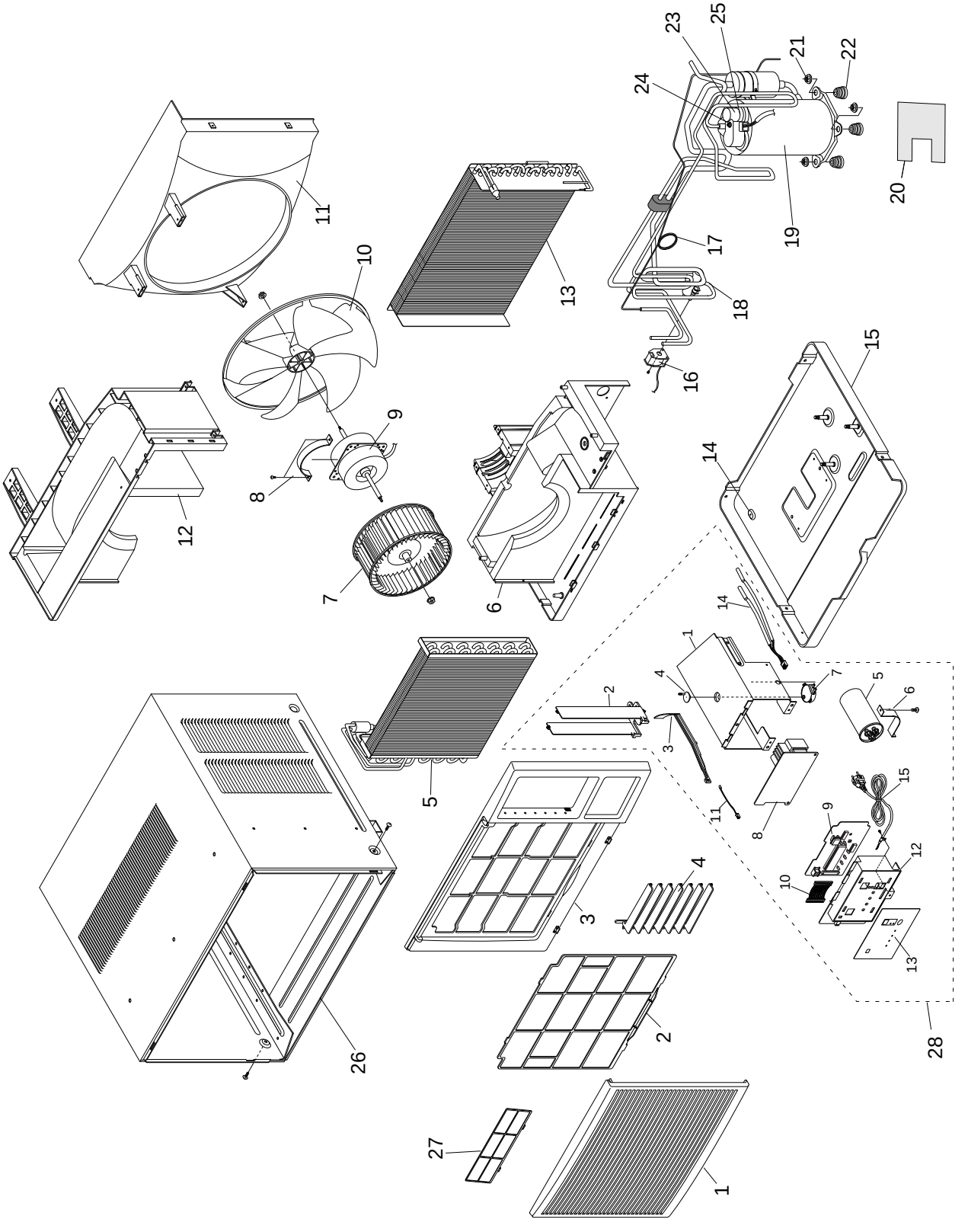
1) Check points

(1) Is the voltage of the power source normal ?(AC198V ~ AC264V)
(2) Is the electric wire in good contact ?(CN72)
(3) Is the 4-way valve connector in good contact?(CN72)
(4) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal?
(5) Is the unit heating cycle?


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power ON?
N
Go to the clause "No power".
Y
Does the 4-way valve operate when pressing the HEAT button of the remote control?
Y
• Normal operation (Operating the "Heat", relay about 3 minutes until the "4-way valve" operates.)
N
Is the IC03(MAIN PCB) output normal? When the air-swing motor is on, IC03(MAIN PCB) No. 13 pin → Low
N
• Check the IC03(MAIN PCB) for a short and cold soldering.
• Replace the IC03(MAIN PCB).
Y
Does the relay(RY 74) operate normally? When the air-swing motor is operated, the RY74 should be operated.
N
• Check the relay coil resistance. (Normal: About 400Ω)
• Replace the relay.
Y
Is the 4-way valve coil normal?
N
• Check the fan motor resistance. (0Ω : short, ∞Ω : open)
Y
Replace the 4-way valve coil.

6. Exploded View and Parts List

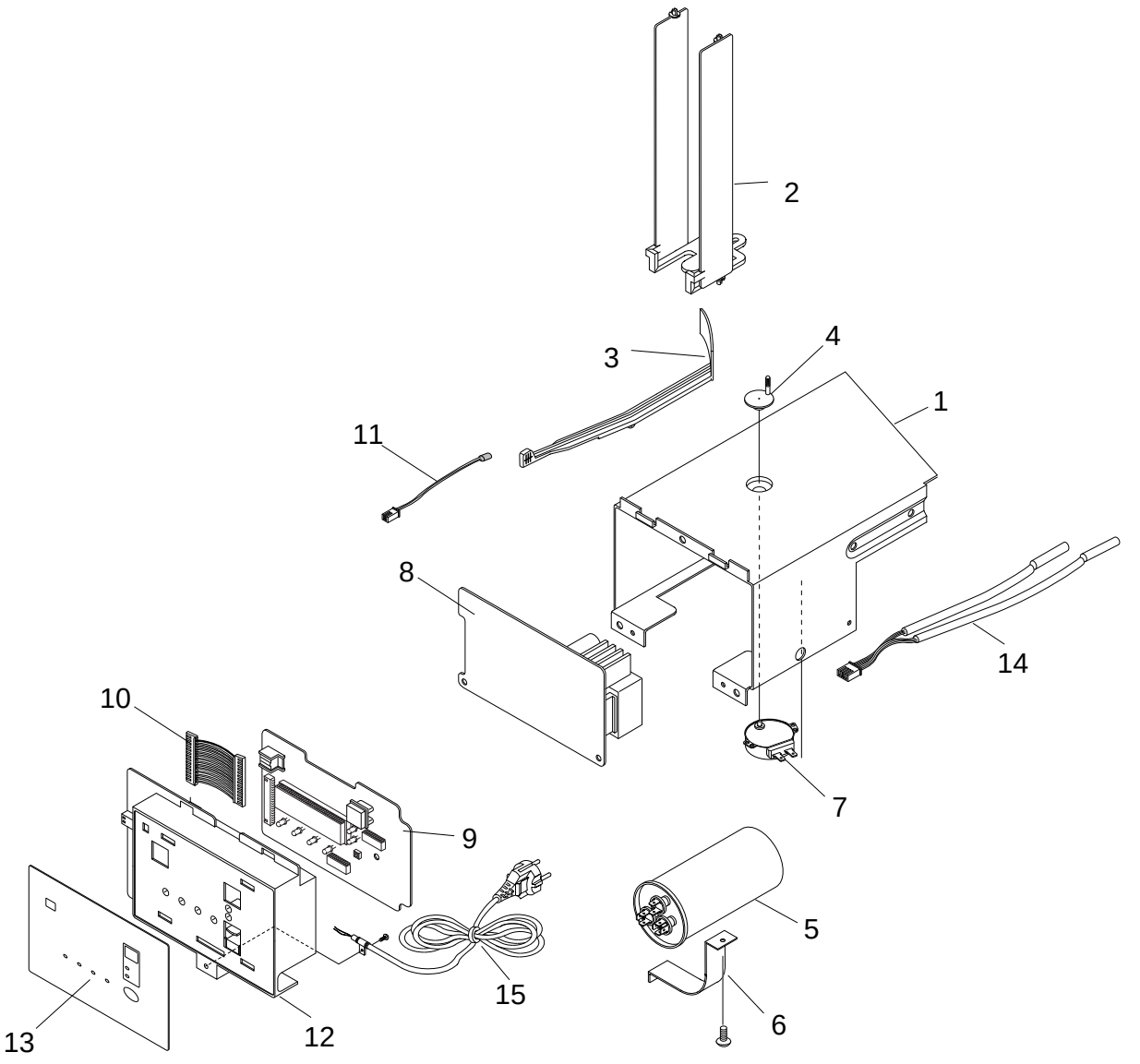
6-1 Main unit



■ Part List

No.	Code No.	Description	Specification	Q'TY		Remarks
				AWH126JE	AWH127JE	
1	DB64-10145A	GRILL AIR INLET	HIPS	1	1	
2	DB63-30142A	GUARD AIR FILTER	HIPS	1	1	
3	DB64-70080A	PANEL FRONT	HIPS	1	1	
4	DB66-30169A	BLADE-H	PP	1	1	
5	DB96-40176A	ASSY EVAP	AWH126JE	1	1	
6	DB90-50133A	ASSY FRAME LOW	AWH120JE	1	1	
7	DB67-50073A	BLOWER	ABS+G/F	1	1	
8	DB65-10101A	CLIP MOTOR	SECC-P	1	1	
9	DB31-10145A	MOTOR	AMAFS110ZTEA	1	1	
10	DB67-50072A	FAN PROPELLER	ABS+G/F	1	1	
11	DB61-10152A	CASE COND	PP	1	1	
12	DB90-50142A	ASSY FRANE UP	AWH120JE	1	1	
13	DB96-30283A	ASSY COND	AWH126JE	1	1	
14	DB63--10355A	CAP DRAIN	CR	1	1	
15	DB90-20198A	ASSY BASE	AWH121JE, 48F	1	1	
16	DB27-10030B	ASS'Y SOLENOID COIL	AWH090ZE	1	1	
17	DB62-31722A	TUBE CAPILLARY ASS'Y	ID 1,7, L1300	1	1	
18	DB96-10591A	ASS'Y TUBE 4-WAY V/V	AWH120JE	1	1	
19	DB95-10062X	ASS'Y COMP	48H124JV1E4	1	1	
20	DB72-50585A	CLOTHE SOUND	T35	1	1	
21	DB60-30028A	NUT WASHER	M8, ZPC	3	3	
22	DB73-10004A	GROMMET-ISOLATOR	EPDM	3	3	
23	DB63-10165A	COVER TERMINAL	NORYL, BLK	1	1	
24	DB60-30018A	NUT-FLANGE	M5, SM20C	1	1	
25	DB47-20001Z	OLP-POLYESTER	MRA12030-12008	1	1	
26	DB90-10586A	ASS'Y CABINET	AWH120JE	1	1	
27	DB63-30145A	GUARD-C/FILTER	PP	-	1	
28	DB98-11178D	ASS'Y CONTROL	AWH126JE	1	1	

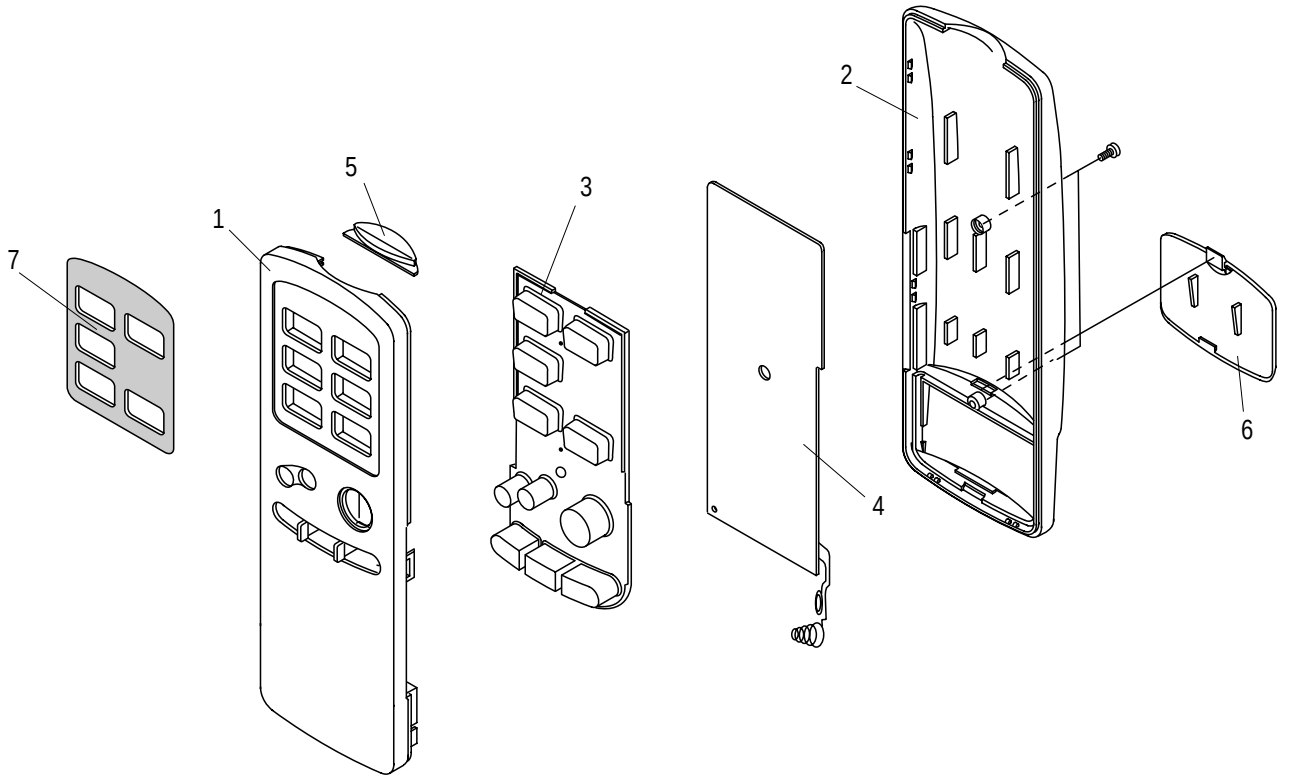
6-2 Ass'y Control



■ Part List : ASS'Y CONTROL

No.	Code No.	Description	Specification	Q'TY		Remarks
				AWH126JE	AWH127JE	
0	DB98-11178D	ASS'Y CONTROL	AWH126JE	1	1	
1	DB61-10153A	CASE CONTROL	SECC-P, TO.8	1	1	
2	DB66-30170A	BLADE-V	PP	1	1	
3	DB66-70024A	LEVER DAMPER	HIPS	1	1	
4	DB66-70022A	ARM-BLADE	ABS	1	1	
5	2501-001124	C-OIL	3.5/30μF, 450VAC	1	1	
6	DB65-10100A	CLIP-CAPACITOR	SEEC-P, TO.8	1	1	
7	DB95-20065F	SWING MOTOR	M2LJ49ZU32	1	1	
8	DB93-10499A	ASS'Y MAIN PCB	AWH126JE	1	1	
9	DB93-10500A	ASS'Y PANEL PCB	AWH126JE	1	1	
10	DB39-20188B	C/W DISPLAY	AWH126JE	1	1	
11	DB32-10051A	THERMISTOR	AWH126JE	1	1	
12	DB64-70083A	PANEL-CONTROL E	HIPS	1	1	
13	DB64-40177A	INLAY-CONTROL R	AWH126JE	1	1	
14	DB32-10045A	THERMISTOR-COND	AWH126JE	1	1	
15	DB39-10086A	POWER CORD ASSY	UCP-2	1	1	

6-3 ASS'Y REMOCON(DB93-30056C)

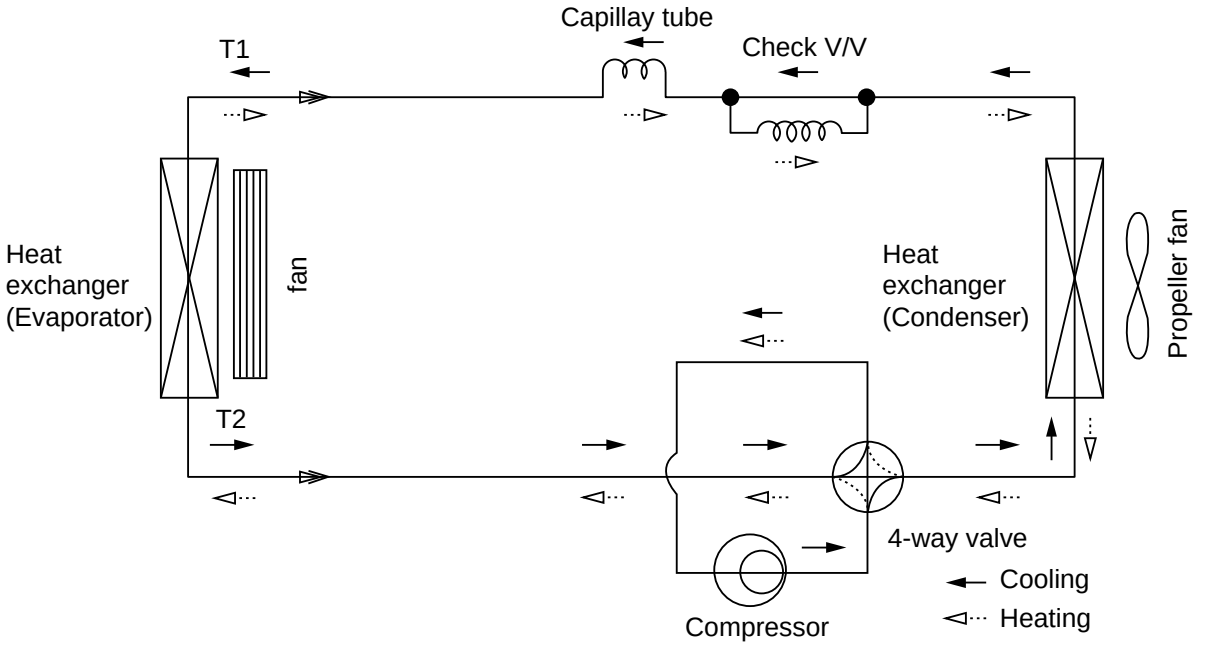


■ Part List

No.	Code No.	Description	Specification	Q'TY		Remarks
				AWH126JE	AWH127JE	
	DB93-30056C	ASS'Y REMOCON	ARH-200	1	1	
1	DB61-10150A	CASE REMOCON(UPP)	ABS	1	1	
2	DB61-10145A	CASE REMOCON(LW)	ABS	1	1	
3	DB73-20112C	RUBBER(BT)	NBR	1	1	
4	DB93-10516B	ASS'Y-REMOCON PCB	AWH126JE	1	1	
5	DB74-10084A	FILTER-REMOCON	PC	1	1	
6	DB63-10477A	COVER BATTERY	ABS	1	1	
7	DB64-40108C	INLAY-REMOCON	PC	1	1	

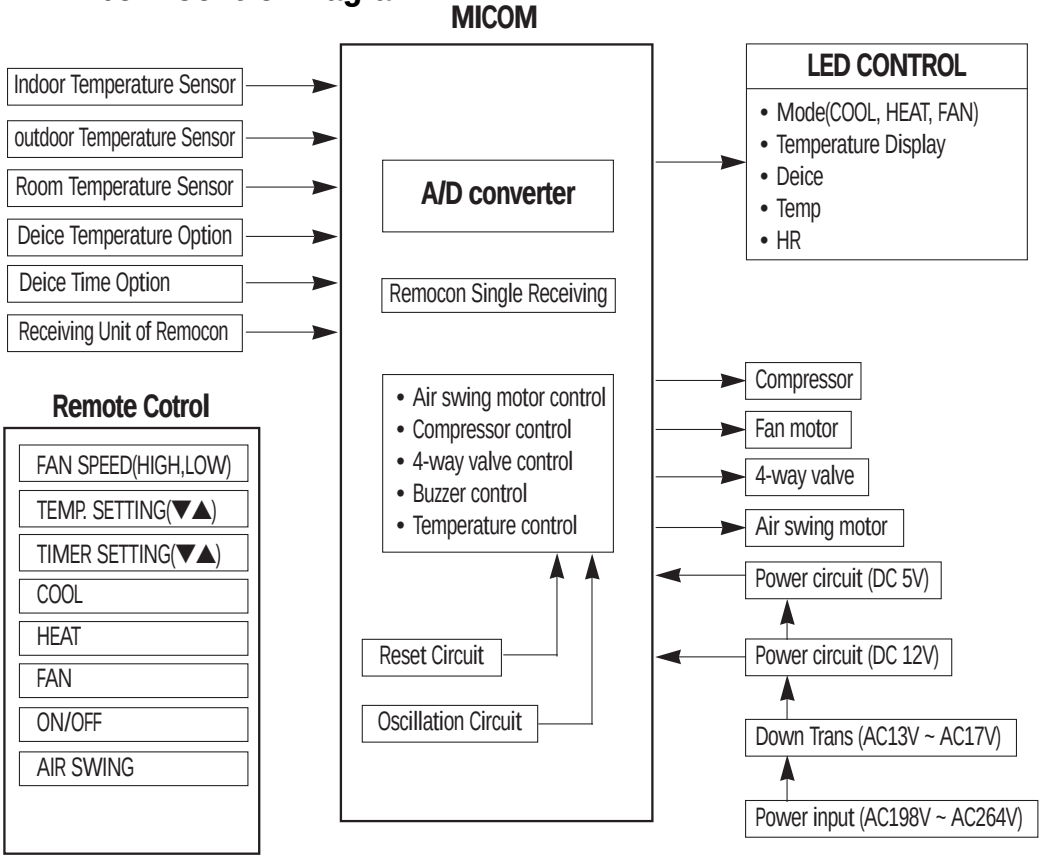
7. Block Diagram

7-1 Refrigerating Cycle Block Diagram



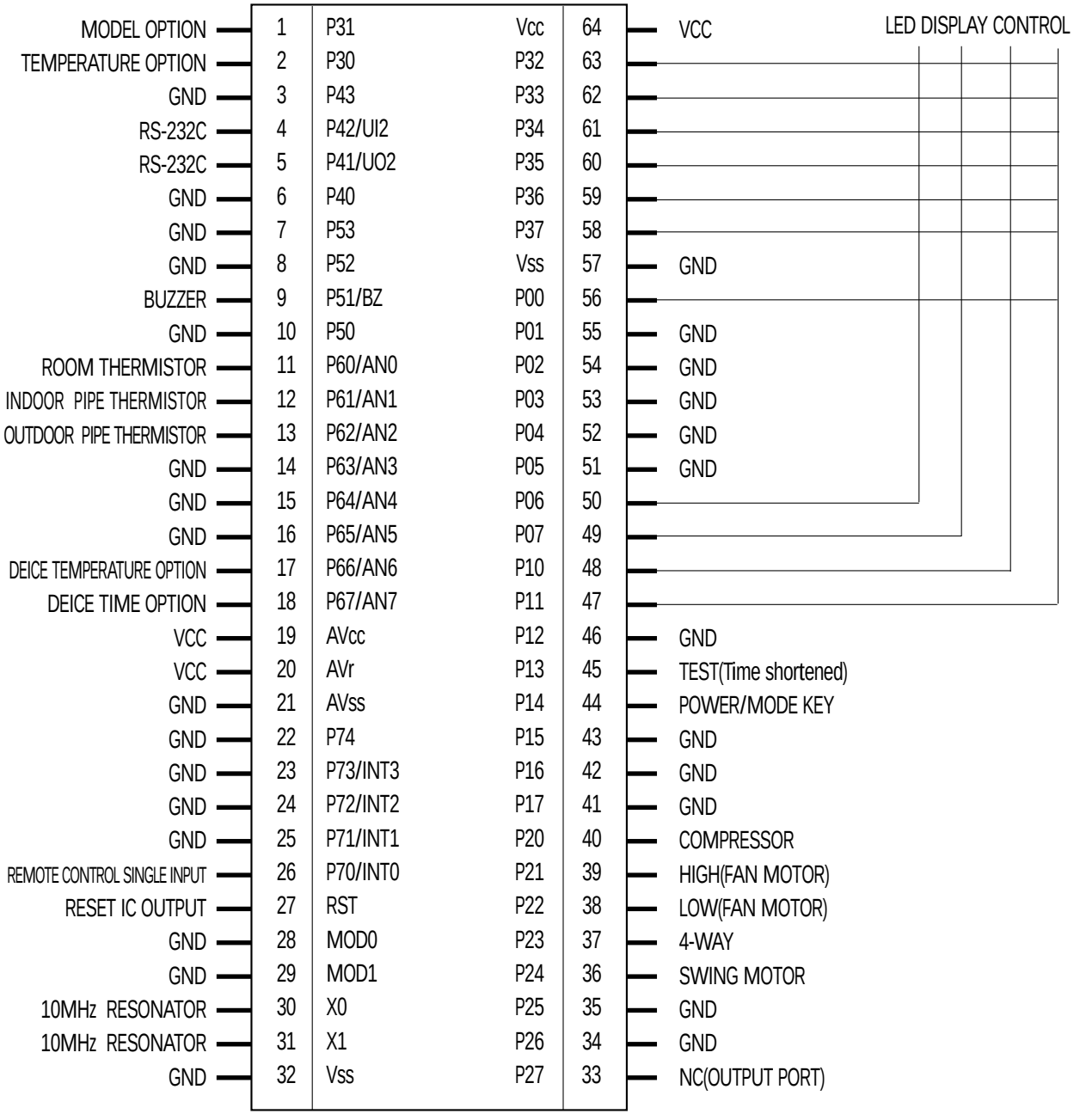
7-2 Basic Structure

7-2-1 Micom Control Diagram



7-2-2 Micom Pin Assignment

(MB89635)



<MODEL OPTION>

P31(#1)	OPTION	NOTE
HIGH	COOLING	AW126JE(COOLING ONLY)
LOW	HEAT PUMP	AWH126JE(HEAT PUMP)

<TEMPERATURE DISPLAY OPTION>

P30(#2)	OPTION	NOTE
HIGH	℃	TEMP DISPLAY UNIT
LOW	℉	TEMP DISPLAY UNIT

<DEICE TIME OPTION>

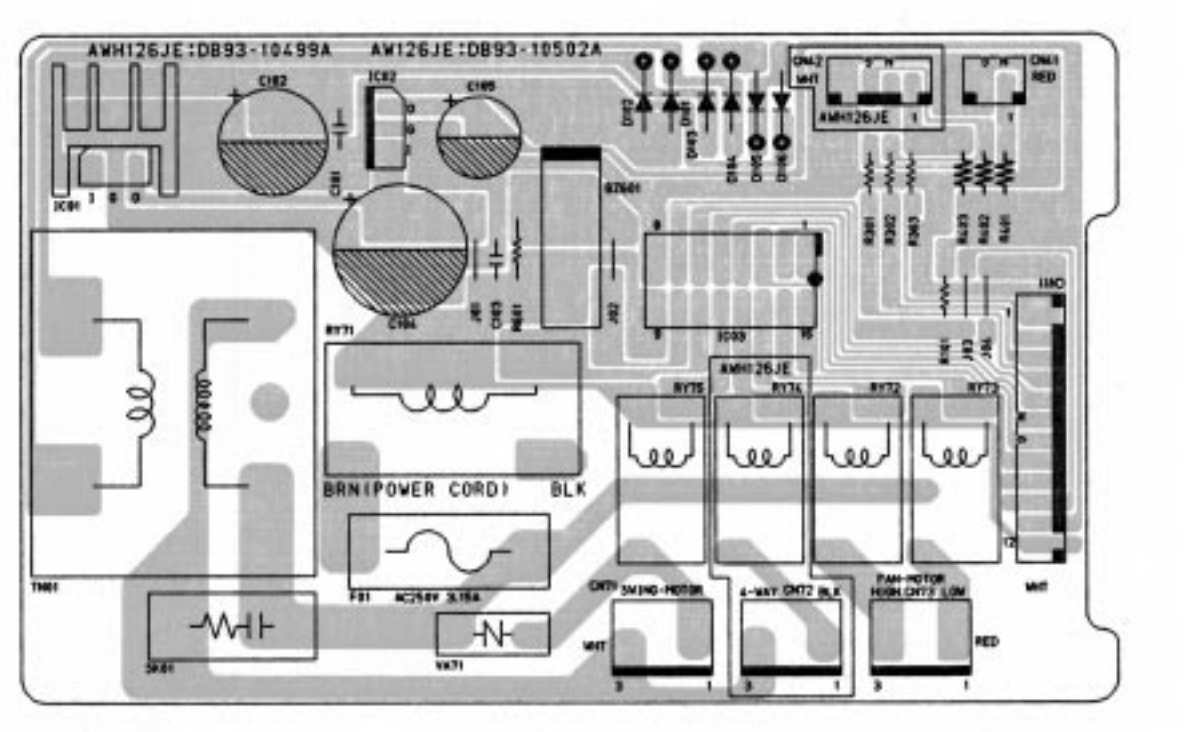
	GND 0.9V	~1V ~1.9V	2V~ 2.9V	3V~ 3.9V	4V~ 4.9V
AN6(#7)	standard -2min	standard -1min	standard	standard +1min	standard +2min

<DEICE TEMPERATURE OPTION>

	GND 0.9V	~1V ~1.9V	2V~ 2.9V	3V~ 3.9V	4V~ 4.9V
AN7(#18)	standard -2℃	standard -1℃	standard	standard +1℃	standard +2℃

8. PCB Diagram

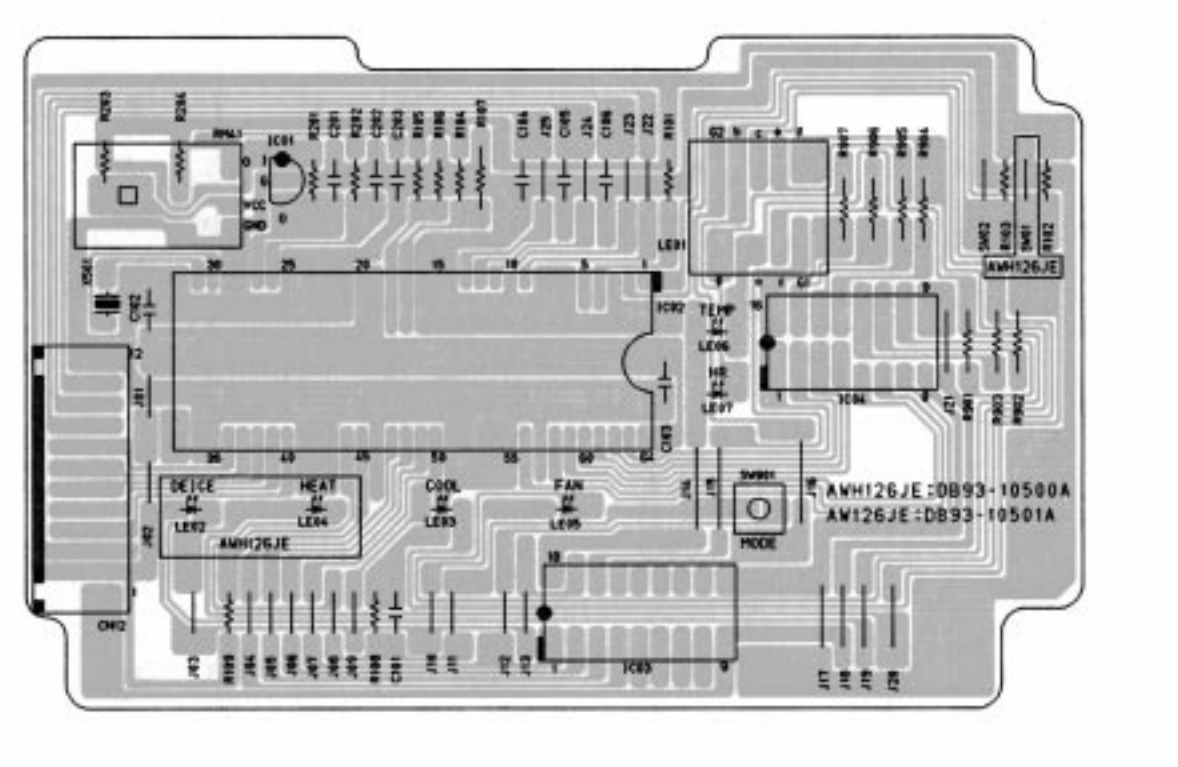
8-1 Main PCB (ASS'Y CODE NO : DB93-10499A)



■ Part List

No.	Description	Code No.	Specification	Q'TY	Remarks
1	ASSY MAIN PCB	DB93-10499A	AWH126JE	1	
2	FUSE	DE32-10037A	FST 250V 3.15A	1	F01
3	DIODE RECT	0402-000137	1N4007	6	D101~D106
4	IC VOLT REGU	DE13-20008A	KA7812 TO-220AB	1	IC01
5	IC VOLT REGU	DE13-20016A	KA7805 TO-220AB	1	IC02
6	SCREW TAPPING	DE60-10100A	M3*6 FEFZY	1	-
7	HEAT SINK	DE62-30039A	AL H25	1	-
8	C-AL	2401-000710	2200uF/25V	1	C104
9	C-AL	2401-000180	1000uF/35V	1	C102
10	C-AL	2401-001397	470uF/25V	1	C105
11	FUSE HOLDER	DE47-40024A	FH-51H 7.5A	1	F01
12	SPARK KILLER	DE47-30019A	ESQ1201	1	SK01
13	RELAY	3501-000399	JQ1A-12V	4	RY72~RY75
14	RELAY POWER	DB47-90081A	JM1aN DC12V	1	RY71
15	BUZZER	DE30-20016A	CBE 2220BA STICK	1	BZ601
16	VARISTOR	1405-000147	14D-471K	1	VA71
17	CONNECTOR WAFER	3711-000654	SMW250-12	1	CN11
18	CONNECTOR WAFER	3711-003405	YW396-03AV BLK	1	CN72
19	CONNECTOR WAFER	3711-000203	YW396-03AV WHT	1	CN71
20	CONNECTOR WAFER	3711-003407	YW396-03AV RED	1	CN73
21	WIRE-SO, COPPER	DE39-60001A	PI 0.6 SN 52MM	4	J01~J04
22	PCB MAIN	DE41-10428A	AWH126JE	1	PCB
23	TRANS L.V	DE26-20114A	230V 17V	1	TN01
24	CONNECTOR HEADER		JSW250-02 RED	1	CN41
25	CONNECTOR WAFER	3711-000940	SMW250-04 WHT	1	CN42
26	IC-DRIVE	DE27-20017A	KID65003AP	1	IC03
27	R-METAL FILM	2004-000218	RD 1/8 TP 103-F	2	R402, R403
28	R-CARBON	2001-001172	RD 1/2T 621-J	1	R601
29	R-CARBON	2001-000003	RD 1/8T 331-J	4	R203, R301, R302, R303
30	R-CARBON	2001-000290	RD 1/8T 103-J	1	R101
31	C-CERAMIC	2202-000780	100nF/50V	2	C101, C103
32	R-METAL FILM	2004-001137	RD 1/8 TP 682-F	1	R401

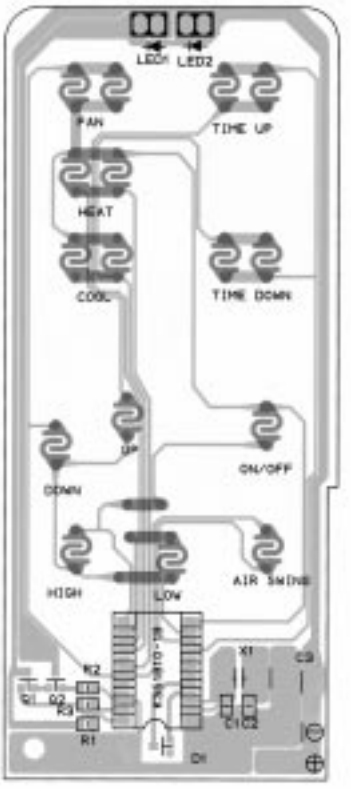
8-2 Display PCB (ASS'Y CODE NO : DB93-10500A)



■ Part List

No.	Description	Code No.	Specification	Q'TY	Remarks
1	ASS'Y PANEL PCB	DB93-10500A	AWH126JE	1	
2	LED LAMP	DB07-10021A	LTL-4233(GRN)	4	LE03, LE05, LE06, LE07
3	LED LAMP	DB07-10019A	LTL-4213(RED)	2	LE02, LE04
4	MODULE REMOCON	DB32-50023A	TSOP1238TBI	1	RM41
5	CONNECTOR WAFER	3711-000643	SMAW250-12	1	CN12
6	HOLDER-SEVEN	DB61-90080A	ABS	1	-
7	IC-SOURCE DRIVE	1003-000217	UDN2981A	1	IC03
8	WIRE-SO, COPPER	DE39-60001A	PI 06 SN 52MM	26	J01~J25, SW01
9	SW TACT V	3404-000280	KPT1115A	1	SW901
10	PCB PANEL	DE41-10429A	AWH126JE	1	PCB
11	R-CARBON	2001-000776	RD 1/2 TP 471	7	R901~R907
12	LED-DISPLAY	DE07-20028A	SSD-A3202GMT-S GRN	1	LE01
13	IC-DRIVE	DE13-20017A	KID65003AP	1	IC04
14	C-CERAMIC	2201-000796	1nF/50V	1	C203
15	R-CARBON	2001-000429	RD 1/8 TP 102-J	2	R108, R201
16	R-CARBON	2001-000003	RD 1/8 TP 331-J	2	R202, R203
17	C-CERAMIC	2202-000780	100nF/50V	7	C101~C106, C201
18	C-CERAMIC	2202-000121	101K 0A/50V	1	C202
19	CERAMIC RESONATOR	2802-000103	10Mhz	1	X501
20	R-CARBON	2001-000290	RD 1/8 TP 103J	8	R101~R106, 109, r204
21	IC-MCU		MB89635-	1	IC02
22	IC	DE13-20009A	KA7533 DIP	1	IC01
23	R-CARBON	2001-000241	RD1/8TP152-J	1	R107

8-3 ASS'Y PCB-REMOCON (ASS'Y CODE NO : DB93-10516B)



(BOTTOM)

(TOP)

■ Part List

No.	Description	Code No.	Specification	Q'TY	Remarks
1	PCB	A3083-043-00	49 X 113.52 X 1.6	1	
2	IC	AC09-10453K	KS5180-19	1	
3	RESONATOR	A1283-0069	RJ455JB	1	
4	TR-CHIP	A4050-0168	2SC2412	2	
5	IR-LED	A4150-0168	SI5012-H	2	
6	C-ELEC	61079-421-120	50V 4.7 uF	1	
7	C-CERAMIC CHIP	A4150-131-101	CL21C101J BNCS	1	
8	C-CERAMIC CHIP	A4150-131-101	CL21C101J BNCS	1	
9	R-MG CHIP	61079-917-010	RMC 1/10 1.0-J	1	
10	R-MG CHIP	61079-917-564	RMC 1/10 560K-J	1	
11	R-MG CHIP	61079-917-331	RMC 1/10 330-J	1	
12	CHIP DIODE	32167-662-012	DAP202K	1	

9. Wiring Diagram

9-1 AWH126JE / AWH127JE

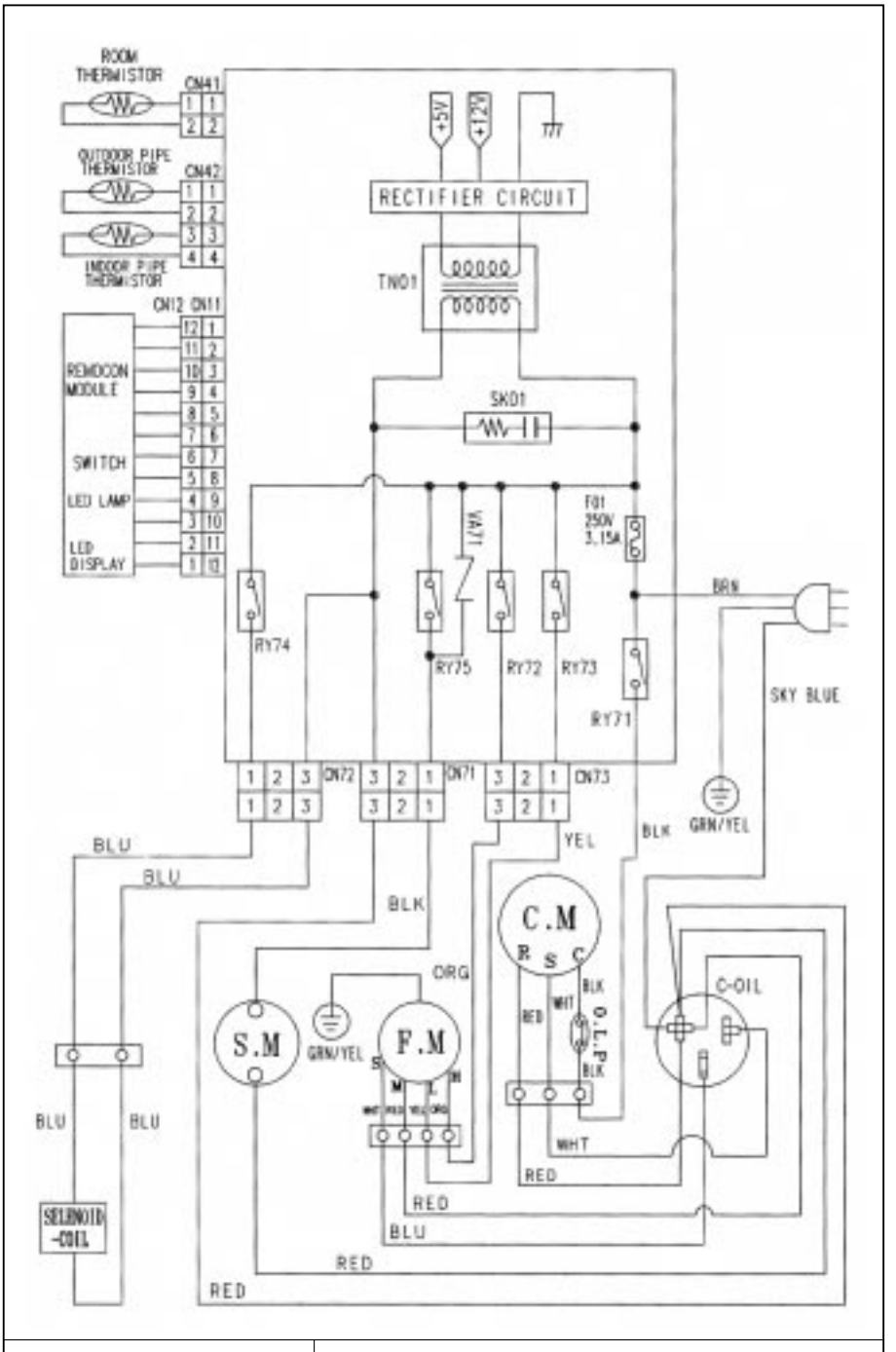
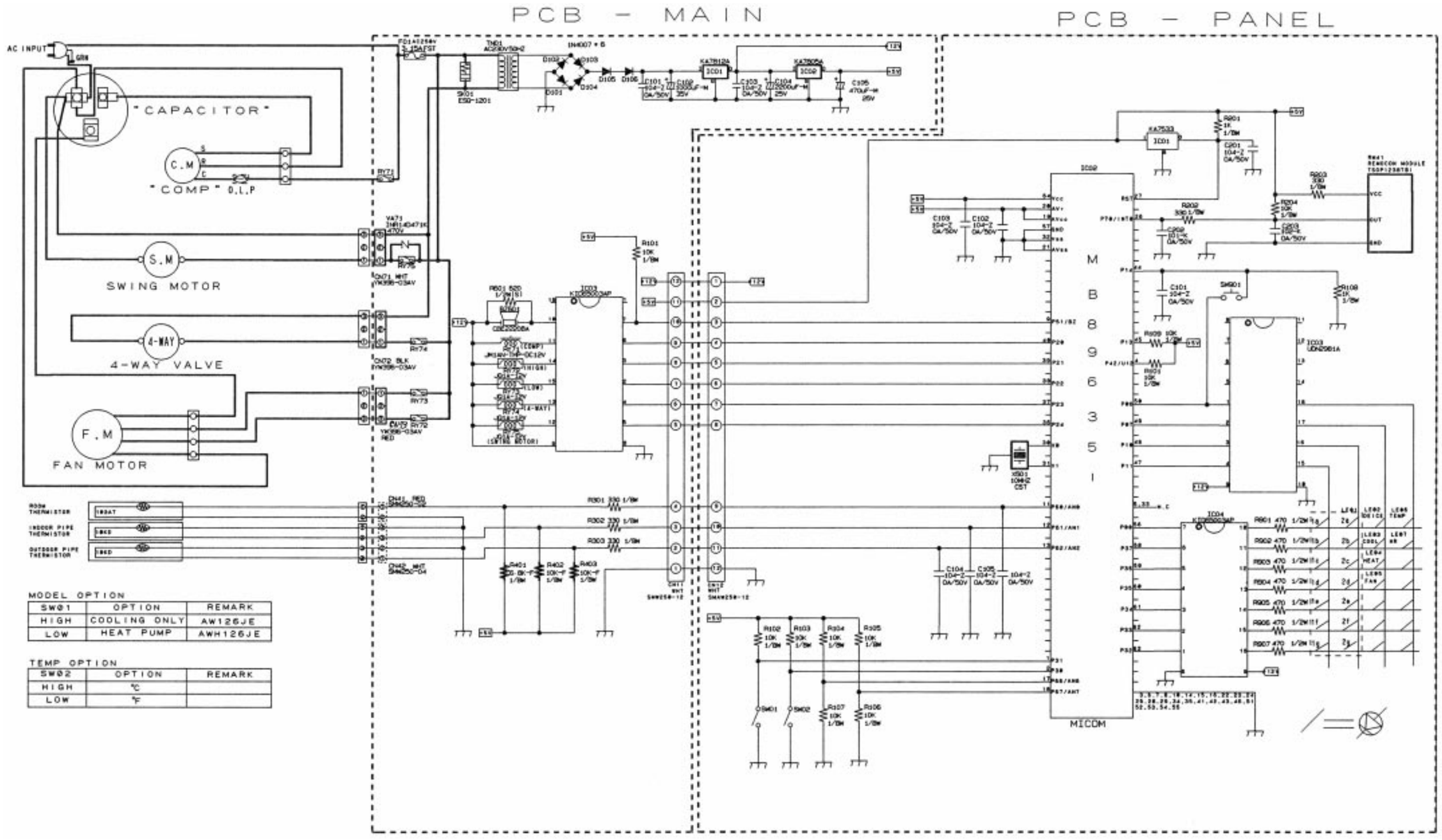


DIAGRAM-ELECTRIC (DB68-20702A)	CAPACITOR : 3.5/30 µF 450VAC
	POWER SOURCE : 220V-240V~/50Hz

10. Schematic Diagrams

10-1 Indoor Unit



10-2 Remote Control